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An Evaluation of a Pilot Interpretive Program for National Forest Recreation Areas in East Texas

AN EVALUATION OF A PILOT INTERPRETIVE PROGRAM FOR
NATIONAL FOREST RECREATION AREAS IN EAST TEXAS

by

Ronda Elain Sutphen, BSF

Presented to the Faculty of the Graduate School of
Stephen F. Austin State University
In Partial Fulfillment
of the Requirements

For the Degree of
Master of Science in Forestry

STEPHEN F. AUSTIN STATE UNIVERSITY

May 1994

AN EVALUATION OF A PILOT INTERPRETIVE PROGRAM FOR
NATIONAL FOREST RECREATION AREAS IN EAST TEXAS

by


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ABSTRACT

A visitor survey was conducted at Ratcliff and Double Lake National Forest Recreation Areas to evaluate visitor characteristics and the effectiveness of interpretive services as a management tool. Two hundred eighty-two campers completed the visitor survey. A one hundred percent sample was attempted at both recreation areas every Sunday morning during July and August of 1991. Data from both recreation areas were analyzed and compared in order to determine any significant differences between visitors in each recreation area and also between visitors who attended or did not attend interpretive programs.

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INTRODUCTION

Interpretation is the communication of ideas to visitors in recreational settings. It is also the translation of technical and often complex language of the environment into non technical form, with no loss in accuracy in order to create in the visitor a sense of sensitivity, awareness, understanding, appreciation and commitment (Risk 1982). Freeman Tilden (1977) describes interpretation as "An educational activity which aims to reveal meaning and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information." Interpretation can also be defined as assisting the visitor in developing a keener awareness, appreciation, and understanding of the area they are visiting (Sharpe 1982). It is a service provided for visitors to parks, forests, refuges, nature centers, and similar recreation areas who wish to learn more about the area's natural and cultural resources. These resources may include: geological processes, animals, plants, ecological communities, history and prehistory of humans. The interpreter of these resources plays an important role in communicating information and ideas about a place or an area to the visitor. He or she must be able to communicate complex scientific or historical information to the visitor in a way in which the visitor can understand without losing or altering the meaning of the interpretive material.

Interpretation is also seen as an effective tool for managers. Management goals that interpreters can relate to visitors include: thoughtful use of resources,

minimizing impact on resources, and promotion of the agency's goals and objectives.

The ability to use interpretation as a management tool has provided great benefits to many agencies. The National Park Service (NPS) places great importance on interpretation, and has communicated and shared information with the public through interpretive programs in parks for many years. As a result of this open policy, visitors are more likely to trust and stand behind Park Service decisions. On the other hand, the U.S. Forest Service whose primary goal has been resource management, has not been as vocal in informing the public on many management decisions concerning Forest Service issues and practices. This may have resulted in the agency being criticized for their actions by elements of the public.

However, due to public demand for recreation, many National Forests are trying to provide more recreational activities for public enjoyment. The Forest Service has also realized the need to include the public in decision making processes concerning land management. Future forest management plans under the New Perspectives Program would allow the public a greater voice. New Perspectives was described as "a program to enhance awareness, understanding, and commitment to managing the national forests and grasslands for their full array of values and benefits, especially their ecological sustainability and long term productivity" (Franklin 1989). It was based on the belief that it is possible to have both a healthy environment and provide for sustainable production of natural resources. The idea of New Perspectives has expanded and is now being thought of as ecosystem management.

Interpretation of forest practices and conservation ethics is relatively new

to the Forest Service and developed programs in these areas are needed for public education. A poll of interpretive services in the southern region of the U.S. Forest Service was taken in 1989. The survey was given to all ranger districts and supervisors offices in Region 8 to determine what types of interpretive services were available to visitors in the southern National Forests. Sixty-eight percent of ranger districts and 47% of supervisor's offices responded to the survey. Results showed there were: 6 visitor's centers, 26 amphitheaters, 49 self guided trails, and 171 interpretive signs on the ranger districts and supervisor's offices responding to the survey. The survey also showed that 36% of southern national forests had no personalized programs given by interpreters, 18% give programs by request only, 38% give summer or intermittent programs, and 24% use volunteers to conduct programs. Many U.S. Forest Service employees felt that lack of support and commitment for interpretive services and inadequate financing, had contributed to the low number of interpretive services offered in national forest recreation areas (Schleyer 1989).

The USDA Forest Service in cooperation with the College of Forestry at Stephen F. Austin State University began a pilot interpretive program at Ratcliff Recreation Area near Crockett, Texas in 1990, and decided to expand the pilot interpretive program to include two other National Forests in Texas in 1991. No in-depth studies of interpretive programs in Texas or of the information needs of USDA Forest Service Recreation Area visitors exist. In order to ensure programs for the general public, consumer wants and needs must be evaluated.

The purpose of this study was to evaluate the effectiveness of interpretive programs in U.S.D.A. Forest Service Recreation Areas and to determine what types of programs should be developed in the future.

The objectives were:

1. To determine the characteristics of visitors to two U.S.D.A. Forest Service Recreation Areas, and to establish which visitor characteristics are important in predicting participation in interpretive programs.
2. To test the effectiveness of certain interpretive programs in satisfying the needs of visitors.

LITERATURE REVIEW

Interpretive programs have been developed to successfully increase public knowledge of natural resource conservation, foster more favorable attitudes toward parks, understand environmental issues, train resource managers and increase the flow of benefits to the public (Dietz 1985; Jacobson 1987; Olson 1984; Sharpe 1982). Effective program development requires an understanding of the interactions of human populations with forest resources. The knowledge, background, attitudes, convictions, involvement, and other environmental activities of recreation area visitors must be understood.

Freeman Tilden (1977) recognized the necessity of understanding park visitor interests and backgrounds before developing interpretive programs. He stated, "The visitor is unlikely to respond unless what you have to tell, or show, touches his personal experience, thoughts, hopes, way of life, social position, or whatever else. If you cannot connect you have lost his interest." In 1984 Field and Wagar reviewed data highlighting the importance of understanding the visitor population to ensure effective park programs.

In natural resource management, it is important that the general public be informed and understand management procedures and policy (Hendee 1974). If the public lacks interest or has inadequate comprehension of natural resource management policies, poor and unsupportive attitudes may be formed toward those policies (Sharp 1982; Chaffee 1969).

Gifford Pinchot pioneered a public relations campaign for natural

resources employing Enos A. Mills as a “traveling government lecturer on forestry.” Pinchot’s philosophy was reflected in his advice to the nation’s first foresters, “Find out in advance what the public will stand for; if it is right and they won’t stand for it, postpone action and educate them” (Fazio 1981).

An understanding of the human population using the recreation area is essential for effective resource management and conservation. Stallen and Coppock (1987) pointed out that communication which makes sense from one perspective may appear contradictory from another. For example, messages to the lay public may be ignored if the content is too complex. However, some audiences bring in relatively high levels of previous knowledge and will reject simplistic messages. This variety of factors affecting the choice of communication media and message needs to be integrated into planning for interpretive programs.

Traditionally, environmental interpretation programs have been designed to serve two functions: education and recreation (Washburne and Wagar 1972, Griest 1981, Field and Machlis 1985). Field and Wagar (1973:12) wrote that interpretation should encourage visitors “to support the management and use of resources with reduced impact.” However, it was not until 1976 when Sharpe published his widely-distributed interpretive text that the idea of “Interpretation as a Management Tool” (IMT) received widespread attention from the interpretive profession. Besides serving the accepted education and recreation functions, Sharpe proposed that interpretation should also seek to accomplish management goals such as: thoughtful use of a resource, minimizing impact on a resource, and promotion of public understanding of agency’s goals and objectives.

A well-designed and managed interpretive program has the potential of both increasing the recreation benefits generated by the recreation resources and of substantially reducing the costs of recreation resource management (Sharpe 1982). Recreation benefits can be increased by better matching available resources and visitor needs, reducing conflicts among competing uses, increase carrying capacity by making unwanted encounters less likely, and influencing users to be less obtrusive (Sharpe 1982).

Interpretive services can also help increase positive economic impacts on local communities by providing visitors with information on commercial services that are available. Interpretation can improve public relations by directing users to respect the privacy and property of others. It can also be used to help educate visitors on public policies concerning certain issues, such as grazing or timber harvesting, in order to give the visitor a better understanding of these policies and how the management decisions are made.

Interpretive techniques can be used as management tools in attempts to control problems such as, unauthorized fossil collecting, littering, defacing public property, free-running pets and many other minor problems that may occur.

A problem perceived by many to be significant is littering. During 1971, cleanup after campers in the National Forests alone cost \$22 million, a 12 percent increase over the previous year (Clark, Hendee and Burgess 1972). According to Keep America Beautiful, litter attracts more litter, lowers property values, drives away tourists and shoppers, and discourages potential new industries. A study by Clark, Hendee, and Burgess (1972) showed that children were willing to pick up trash in campgrounds for some type of an award incentive such as a Smokey Bear or Junior Ranger patch.

Interpretation may also be used to warn visitors of potentially dangerous situations, including steep cliffs, encounters with wild animals, poisonous snakes and plants, and dangers dealing with climate and weather. A park manager is responsible for the safety and welfare of the visitor. "If a visitor asks for the advice of a ranger, he or she has the right to rely on the advice-- particularly when it is related to a safety concern (Rankin 1989)."

Interpretation can provide substantial assistance to law enforcement through educational persuasion. Rules and regulations must be publicized and enforced to be effective. Normally this is the task of law enforcement personnel. Interpretation can, however; state the desired behavior and point out the ecological consequences of such actions as: erosion from trampling vegetation, making new trails, picking wildflowers, carelessness with fire, and other depreciative behavior. Interpretation can explain why rules and regulations are necessary. Most violations like flower picking, shortcuts, and careless fire use are done in ignorance rather than malice. A study by Roess and Moeller (1974) showed that many times campers disobey rules because they have not read the rules for a particular area, or they assume that the rules will be the same as in other areas they have visited. The study indicated people who were most likely to disobey rules were adolescent, first-time, nonlocal, and tent camper segments of the recreation audience. An interpretive program which addresses the opportunity to educate well-meaning but uninformed visitors and clearly deals with the care and appreciation of the natural environment should have an immediate and positive impact (Sharpe 1982).

Public attitudes and actions are the keystone to the decision making process in issues regarding natural resource management. Yet such management

has been embroiled in controversy for over the last twenty years. The public has been subjected to a broad spectrum of information, some factual, much not factual and most of it appealing to emotions. While a great deal of propaganda has been disseminated by all sides in the various controversies, very little effort has been extended to educate concerned citizens regarding wise use of natural resources.

Schoenfield (1971) points out that the determination of "wisest use" of a resource is an essentially political or in other words public decision. Education of the public is an essential aspect of resource management, and development of an environmentally aware and knowledgeable public is of paramount importance for conservation.

Park interpretation programs have great potential for promoting sound conservation practices, and USDA Forest Service recreation areas provide an ideal situation for educating an important segment of the public about the natural history of East Texas and the role of forest resource management in conserving natural resources. Interpretive programs have been found to be a particularly effective form of environmental education in a variety of regions (Dietz 1986; Jacobson 1986; Preston and Fuggle 1987). In Ohio, state parks visitor education programs were successful in raising levels of knowledge and attitudes toward state nature preserve management (Olson 1984).

A 1986 study on Florida state parks (Cerulean 1986) found that Floridians who participated in park related recreational activities were more likely than non participants to:

1. Support increased funding for natural resource and environmental issues;

2. To place a high value on the existence of and recreational values of wildlife
3. And wild lands; and
4. To want additional resource information.

In Mt. Rainier National Park water pollution, over harvesting of shellfish and trail erosion were just some of the problems facing park managers. Development of educational programs gave park managers an opportunity to involve the public in problem solving of existing issues in the park by using interpretation and public education as a management tool (Garner and Dengler 1992).

Interpretation as a management tool has been widely recognized as a viable strategy in developed countries (Rodriguez, Sutherland and Wallace 1992). In developing countries like Ecuador, managers have come up with a unique way to use interpretation as a management tool to create an "interpretive niche" for park personnel. The term niche implies the distinct role an organism fills within an ecosystem, an ability to out compete others within a special area. Therefore, park guards should be encouraged to share their wealth of in-depth knowledge they have gained through practical experience with the visiting public.

However, visitors to Galapagos National Park in Ecuador are guided for the duration of their visit by private tour guides because there are not enough park guards to cover the entire park. This situation provides a unique opportunity to involve park guards in outreach and educational activities with local communities. Many of the park guards are from the surrounding area and this common bond of friendships, language, and understanding of the local

culture enables them to educate the local people in resource management and conservation practices which are beneficial to the park as well as the local people.

A pressing need facing natural resource agencies is to broaden their political and financial base to include non consumptive users as well as consumptive users (Witter 1980). Support for resource management programs will likely come from currently active user groups. Where will these users gain their information for decision making? They represent a motivated audience that can be reached at reasonable cost through interpretive programs about wise use of resources.

It has been proven that the use of interpretation as a management tool can be an asset in communication and public relations. Many agencies are reluctant to use interpretation as a management tool because of the traditional image of the interpreter as an educator or entertainer instead of a resource management professional. Also, many interpreters are not trained in using interpretation as a management tool. Some agencies would like to use interpretation as a management tool but time, money, and management support are major limiting factors (Hooper and Weiss 1990).

In order to develop effective interpretive programs, interpretive services must be evaluated. There is a great deal of disagreement throughout the interpretive profession of what interpretation is or should be. Many feel that interpretation should serve the management function of controlling visitor behavior. However, the philosophical view of the interpretive profession supports a more indirect approach through understanding, appreciation, and protection. Studies of the impacts of interpretive services on visitor behavior can be divided into three areas: knowledge (understanding), attitudes

(appreciation), and overt behavior (protection) (McDonough and Lee 1990).

Interpretive evaluation is a way to determine qualities, identify strengths and weaknesses, and answer questions about effectiveness. In one particular study, three questions were asked to determine the effectiveness of interpretive programs: 1) Do visitors enjoy interpretive services? 2) Are visitors learning from interpretive services? 3) Do messages about safe, appropriate use of forest resources have the desired effect on visitor behavior? (Medlin and Ham 1992).

There are many different approaches in evaluating interpretation. Quantitative techniques involve numbers and in some cases statistical analysis of those numbers. Qualitative methods involve verbal descriptions, responses, and impressions. If conducted properly, these evaluations can: provide evidence of the benefits of interpretation that are important to managers; provide direction for interpreters to improve their services; and provide better services to visitors (Medlin and Ham 1992).

Surveys have been used as methods to evaluate interpretive services and visitor characteristics. The scarcity of timely secondary data relating directly to the recreation/leisure industry and its customers often necessitates the use of survey research in the acquisition of suitable data (Dikeman 1983).

The primary reason that outdoor recreation surveys are carried out is to provide a basis for forecasts or predictions which can then be employed in planning and management activities (Burton 1983). Demographic factors including age, family values, sex, marital status, and socio-economic factors such as income and education are important visitor characteristics that need to be evaluated in order to develop effective interpretive programs that will suit the need of the visitor.

Three main survey methods used in gathering data are: personal interviews, telephone interviews, and mail surveys. Each of these methods have advantages and disadvantages and must be evaluated to ensure that the method used will be the most efficient and effective for the manager as well as the visitor (Burton 1983).

Recreation managers can use survey results to obtain valid and accurate information about the use of interpretation as a management tool. Choosing the best survey method for gathering the information wanted is almost always a challenge. Cost, quantity, and quality of data; sampling, expected response rate; and the advantages and disadvantages of each method enter into the decision (Viladas 1982). Surveys can either be a valuable tool in decision making, or a waste of time and money. Viladas 1982, lists six rules for getting the most out of surveys: 1) Have a clear sense of purpose; 2) Think about the contribution of the survey to the decisions to be made; 3) Plan carefully, draw up a realistic schedule and stick to it; 4) Analyze for results that provide a guide to action; 5) Communicate the results effectively; and 6) Develop a conceptual base for your survey work.

STUDY AREA

The proposed study areas were two U.S.D.A. Forest Service Recreation Areas in East Texas. Ratcliff Recreation Area, located in the Davy Crockett National Forest, and Double Lake Recreation Area, located in the Sam Houston National Forest, were chosen for this study (Figure 1). Both of these recreation areas contained developed campground facilities, an amphitheater and nature trails for interpretive purposes.

Ratcliff Recreation Area, is located on the Neches Ranger District of the Davy Crockett National Forest, and is approximately 40 miles west of Nacogdoches on Texas Highway 7. This recreation area was built by the Civilian Conservation Corps (CCC) in 1936 (Figure 2). It surrounds a 45 acre lake that was once a log pond and source of water for the Central Coal and Coke Company sawmill that operated from 1902 to 1920. Many of the old sawmill ruins are located in and around the recreation area. The surrounding National Forest is comprised largely of mature loblolly (*Pinus taeda*) and shortleaf (*Pinus echinata*) pine.

Camping facilities in Ratcliff Recreation Area include: 76 family camping units, 13 single family picnic units, 2 picnic shelters, a swimming area, and bath house. Twenty-seven electrical hook-ups are available in Dogwood loop. A concession stand offering groceries, snacks, and various other supplies is located on the west side of the lake. Paddle boats and canoes can also be rented at the concession stand.

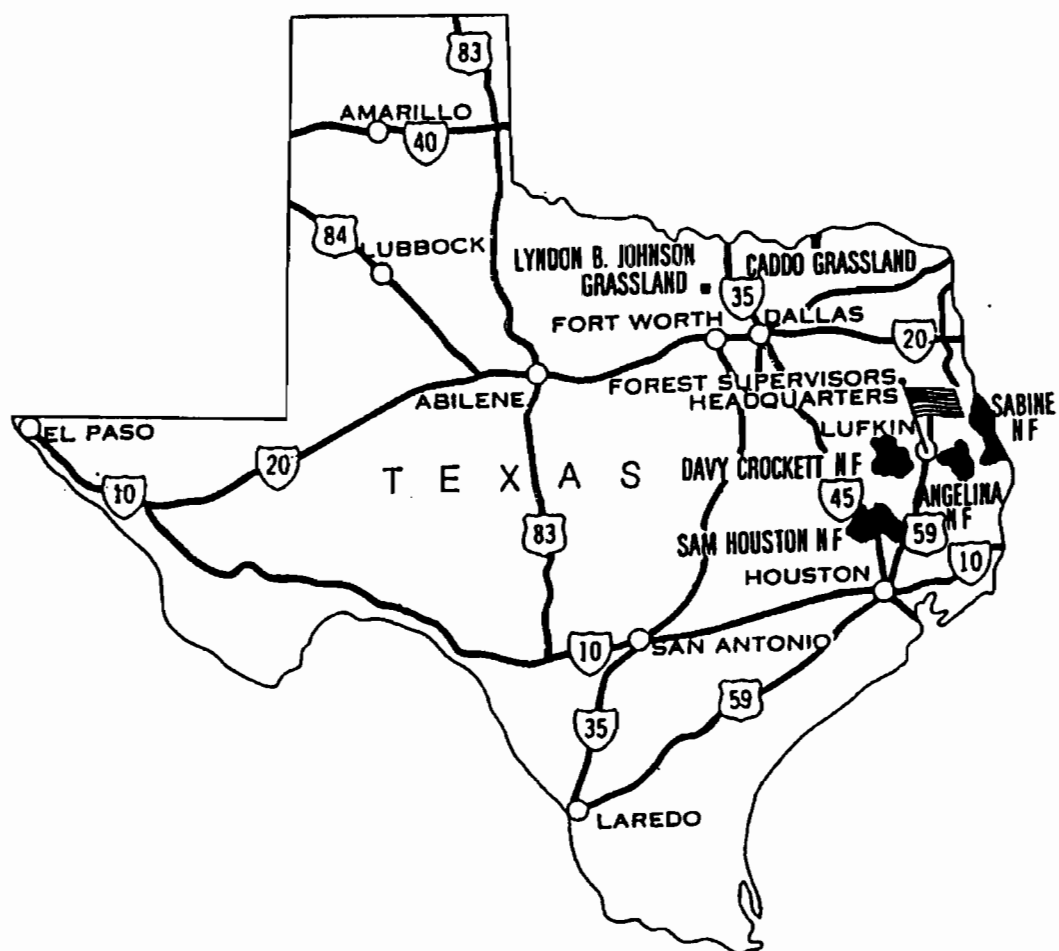


Figure 1. Location map of National Forests in Texas.

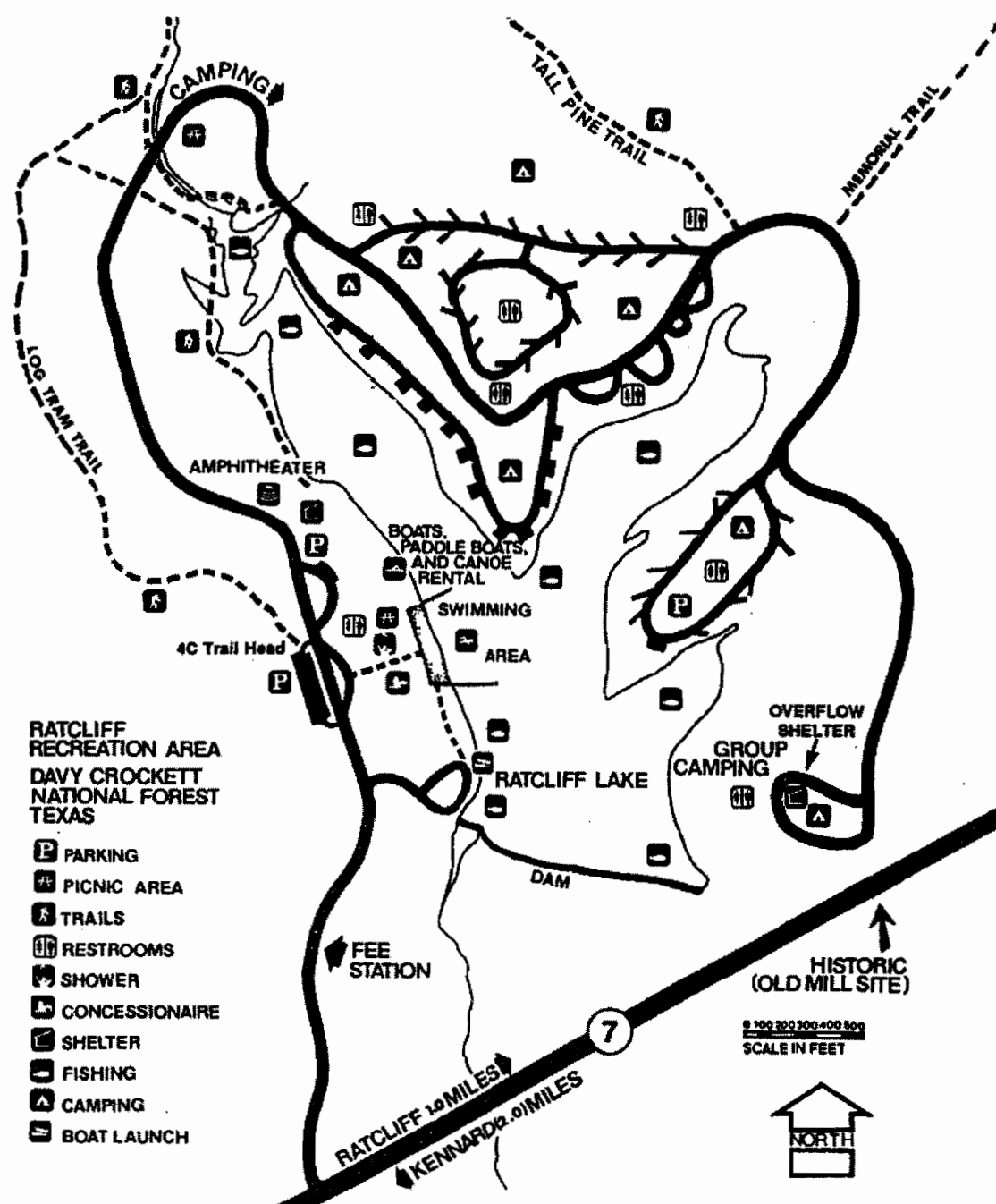


Figure 2. General layout of Ratcliff Recreation Area.

Interpretive facilities include an amphitheater with a seating capacity of 150, an interpretive kiosk for the Central Coal and Coke Company sawmill ruins and the Tall Pine Nature Trail.

The 4 C's Nature Trail is a 20 mile trail that begins near the amphitheater in the recreation area and ends at the Neches Bluff Scenic Overlook. The trail leads through a variety of timber types and through parts of the Big Slough Wilderness Area.

Double Lake Recreation Area is located on the San Jacinto Ranger District in the Sam Houston National Forest approximately 70 miles north of Houston. This recreation area is very important for interpretation because of the large urban populations that it serves. In 1992 the U.S.D.A. Forest Service classified the Sam Houston National Forest to be an urban forest because of its heavy use by urban visitors.

Double Lake was built in 1937 by the CCC (Figure 3). It includes 49 campsites with tent pad, picnic table, and campfire ring and 6 larger sites for group camping. There are picnic areas on both sides of the lake and a covered shelter with a capacity of up to 100 people. An old CCC building with a stone fire place and kitchen facilities is also available to the public upon request. Showers and toilet facilities are located throughout the campground. A concession stand offering snacks, supplies, and paddle boat and canoe rentals is located on the east side of the lake next to the swimming area. Interpretation facilities for the recreation area include a self guiding nature trail around the lake and an amphitheater which seats 150 people.

Adjacent to Double lake is the 1,460 acre Big Creek Scenic Area where a five mile trail winds through upland pine forests and beech and magnolia stream

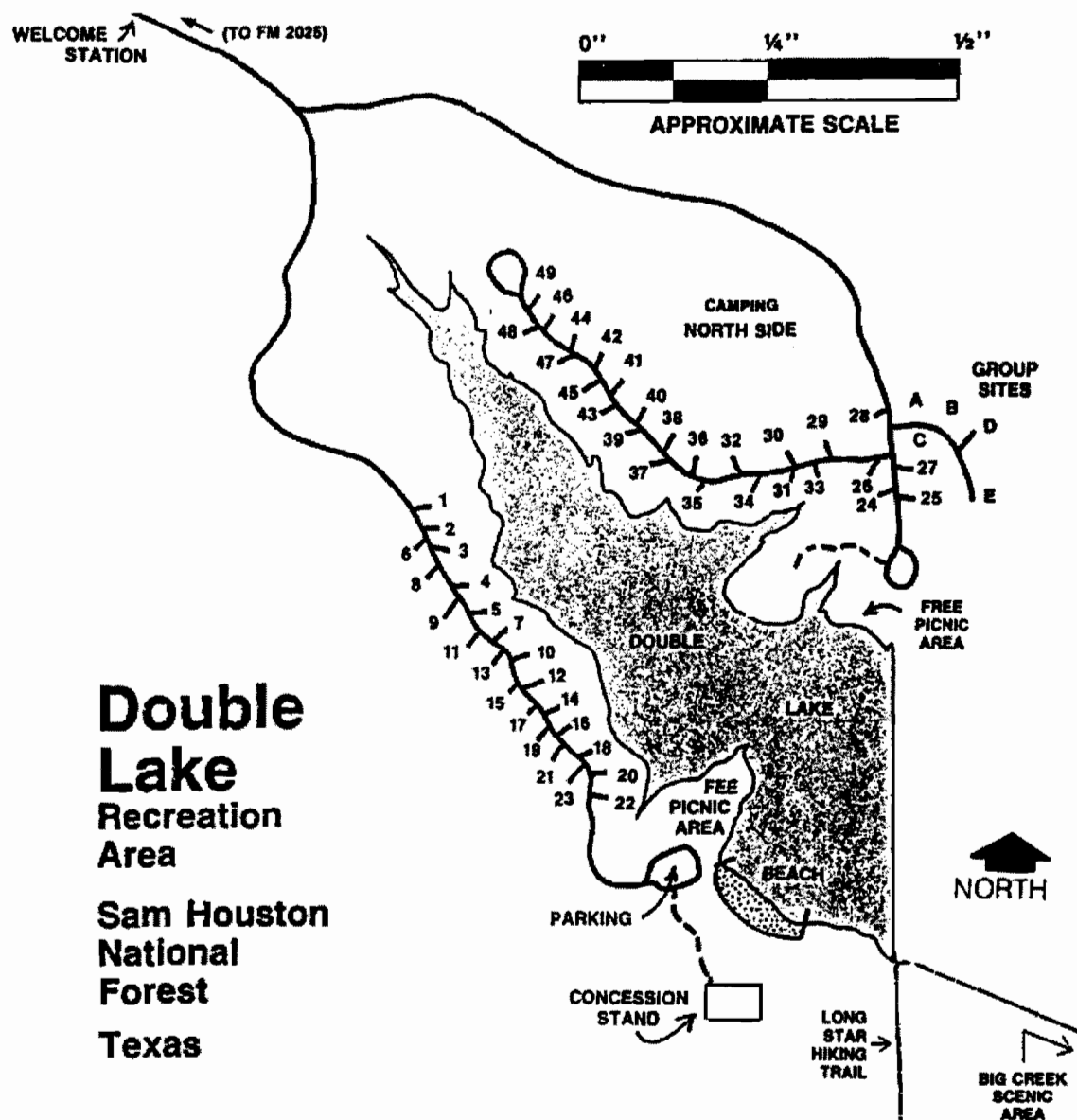


Figure 3. General layout of Double Lake Recreation Area.

bottoms. The trail includes 4 side loops each less than a mile long. The main trail connects Double Lake Recreation Area to the Big Creek Scenic Area.

METHODS

Data Collection

A visitor questionnaire was developed and implemented to determine three categories of visitor information: recreation participation, interest in natural resource management, and interpretation participation (Appendix A).

Recreation participation variables included visitation rates, group size, distance traveled, and socio-economic data useful in visitor classification.

Resource management included variables measuring visitor knowledge of natural resource management practices, and public opinions regarding current national forest management.

Interpretive questions gathered information on program attendance, content, and effectiveness.

Visitor surveys were conducted on Sundays starting July 14, and ending on September 2, 1991. The survey was pretested to insure reliability on Sunday mornings during the dates of June 16, through July 7, 1991. Consequently, some questions were revised and others added or deleted to develop the current survey. The revised survey questionnaire was administered to 295 visitors in Ratcliff and Double Lake Recreation Areas during the summer of 1991 in the months of July through September. Of the 295 surveys administered, 282 were satisfactorily completed. Ninety-three surveys were administered at Ratcliff Recreation Area and 189 surveys were administered at Double Lake Recreation

Area. The lower number of surveys completed at Ratcliff recreation area may be attributed to the fact that Ratcliff Lake visitors departed earlier on Sunday morning on the average than Double Lake visitors. This was perhaps do to the longer distances traveled by Ratcliff visitors (Appendix B) or that some visitors may have wanted to attend church. On occasion, interpreters did not have enough time to administer the surveys before visitors left for home on Sunday mornings.

Surveys were administered between 8:00 a.m. and 10:00 a.m. on Sunday mornings since Saturday evening was the highest participation time for amphitheater programs.

Sampling Procedure

Student interpreters visited campsites on Sunday morning and asked visitors if they would participate by answering a questionnaire. If visitors agreed to participate, they were given a survey form and a brief explanation of how to complete it. The interpreters would then return to the campsite in approximately one hour in order to give the visitor time to complete the questionnaire.

Survey Questionnaire

The visitor questionnaire consisted of three parts that were used to analyze visitor demographic and socio-economic backgrounds and their

attitudes toward interpretation, conservation, and environmental practices (Appendix A). The first part of the questionnaire was a data sheet which included: date, day of week, campground, weekend program listings, number of people in campground, and visitor campsite number. This part of the survey was completed by the interpreter conducting the survey. The second part of the questionnaire contained demographic background information to be filled out by the head of household at each campsite. The third part of the questionnaire was developed to determine visitor wants and needs. It was given to visitors age 12 and older in every campsite to evaluate each person's perspectives and attitudes concerning interpretation, conservation, and environmental practices.

Analysis

Correlation's between demographic and benefit variables and interpretive program attendance were used to establish the extent to which the pilot interpretive program met the needs of visitors.

Statistical Analysis

Independent variables in the study included:

1. Expectations prior to visit;
2. Aspects of the area most enjoyed;
3. Programs attended;
4. Preferred activities;
5. Preferred programs;
6. Knowledge of the area;

7. Time spent in the area;
8. Socio-demographic variables.

Dependent variables to be delineated include:

1. Educational wants and needs;
2. Recreational wants and needs;
3. Program preferences.

The JMP statistical package, developed by the SAS Institute for the Apple Macintosh computer, was used to determine frequency distributions to discover significant differences in sample groups. Data were separated into those attending interpretive programs and those who did not attend interpretive programs. Data were then separated by recreation areas. Data were also analyzed by age classes, 17 and under and 18 and older, for those who attended programs and those who did not attend programs in each recreation area.

RESULTS OF VISITOR QUESTIONNAIRE

One purpose of this survey was to determine significant differences between visitors who attended interpretive programs and visitors who did not attend interpretive programs in National Forest Recreation Areas in East Texas. Visitor characteristics within each recreation area were compared to one another in order to determine any significant differences between visitors to each recreation area and also between the groups that attended interpretive programs and those that did not attend programs.

Demographics Of Visitors

Results From Ratcliff Recreation Area

Most visitors in Ratcliff Recreation Area were there for a weekend excursion (Table 1). Seventy-six percent of visitors surveyed who attended programs and 61% of visitors surveyed who did not attend programs were tent campers (Table 2). Sixty-percent of male visitors and 43% of female visitors attended interpretive programs. The average program audience was 64% male and 36% female (Table 3). The average age of visitors that attended programs was thirty while the average age of those who did not attend programs was thirty-one. The average income level of those who responded and attended programs was \$10,000 to \$25,000 and was \$25,000 to \$49,000 for those who responded but did not attend programs (Table 4). The average education was

Table 1. Responses to the question: "What was the nature of your visit?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Vacation	1	1	5	5	9	18	7	16	10	7	12	9
Weekend excursion	79	82	76	82	40	82	37	84	119	81	113	82
Stop over between destinations	14	15	9	10	--	--	--	--	14	10	9	7
Other	2	2	3	3	--	--	--	--	2	2	3	2
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 2. Type of camp shelters used by visitor respondents.

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Travel trailer	3	3	6	6	1	2	5	11	4	3	11	8
Motor home	2	2	--	--	--	--	--	--	2	1	--	--
Truck mounted camper	1	1	--	--	--	--	2	4	1	1	2	1
Tent trailer	5	5	6	6	11	22	10	23	16	11	16	12
Tent	79	82	80	86	37	76	27	61	116	80	107	78
Other	6	6	1	1	--	--	--	--	6	4	1	1
Total	96	100	49	100	49	100	44	100	145	100	137	100

Table 3. Male and female questionnaire respondents in Double Lake and Ratcliff recreation areas

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Male	51	53	49	53	32	64	21	47	83	57	70	51
Female	45	47	44	47	17	36	23	53	62	43	67	49
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 4. Income level of questionnaire respondents.

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
< \$9,999	6	6	5	6	1	2	3	7	7	5	8	6
\$10,000 to \$25,000	7	7	9	10	17	34	9	20	24	16	18	13
\$25,000 to \$50,000	26	27	31	33	15	32	11	25	41	29	42	31
\$50,000 to \$75,000	32	34	30	32	8	16	10	23	40	27	40	29
\$75,000 to \$100,000	6	6	4	4	2	4	11	25	8	6	15	11
\$100,000 +	3	3	10	11	1	2	--	--	4	3	10	7
No Response	16	17	4	4	5	10	--	--	21	14	4	3
Total	96	100	93	100	49	100	44	100	145	100	137	100

high school and one year of college for those who attended programs and twelfth grade for those who did not attend programs (Table 5).

Fifty-six percent of the visitors who attended programs were employed full-time and 22% were full-time students. Sixty-one percent of visitors who did not attend programs were employed full-time and 21% were full-time students (Table 6). Forty-four percent of the campers at Ratcliff were single families; however, 52% of the people attending programs were in single family groups (Table 7). Twenty-six percent of visitors surveyed that attended programs and 16% of those who did not were from cities with populations greater than 100,000 (Table 8).

Results From Double Lake Recreation Area

The majority of visitors to Double Lake Recreation Area were also there for weekend excursions (Table 1). Eighty-two percent of visitors surveyed who attended programs and 86% of visitors surveyed who did not attend programs were tent campers (Table 2). Fifty-one percent of male visitors and 50% of female visitors attended interpretive programs. However, the average program audience was 53% male and 47% female (Table 3).

The average age of visitors that attended programs was thirty years old and the average age of those who did not attend programs was thirty-two. The average income level of those who attended programs was \$25,000 to \$49,000 and was also \$25,000 to \$49,000 for those who did not attend programs (Table 4). The average education level was eleventh grade for those who attended programs and was high school and one year of college for those who did not attend programs (Table 5). The reason for the lower education level of program attendees was that a large number of young Boy Scouts responded to the survey.

Table 5. Education level of questionnaire respondents

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Fourth Grade	6	6	1	1	--	--	--	--	6	4	1	1
Fifth Grade	5	6	--	--	1	2	1	2	6	4	1	1
Sixth Grade	4	4	4	4	2	4	1	2	6	4	5	4
Seventh Grade	2	2	2	2	1	2	3	7	3	2	5	4
Eighth Grade	2	2	5	5	--	--	1	2	2	1	6	4
Ninth Grade	3	3	2	2	3	6	1	2	6	4	3	2
Tenth Grade	6	6	4	4	2	4	2	4	8	6	6	4
Eleventh Grade	4	4	4	4	6	12	2	4	10	7	6	4
Twelfth Grade	29	30	25	27	11	23	13	31	40	28	38	28
1 Year College	7	7	9	11	5	11	5	11	12	9	14	10
2 Years College	7	7	10	12	3	6	6	14	10	7	16	12
3 Years College	5	6	4	4	3	6	3	7	8	5	7	5
4 Years College	3	3	6	6	1	2	--	--	4	3	6	4
Bachelors Degree	7	7	13	15	6	12	3	7	13	9	16	12
Masters Degree	5	6	4	4	3	6	3	7	8	5	7	5
Doctoral Degree	1	1	--	--	2	4	--	--	3	2	--	--
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 6. Occupation classification of questionnaire respondents.

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Employed Full-time	46	48	63	68	28	56	27	61	73	50	90	62
Employed Part-time	13	14	5	5	6	12	2	4	19	13	7	5
Home maker	10	10	11	12	4	8	4	9	14	10	15	11
Full-time Student	23	24	12	13	11	22	10	23	34	23	22	16
Part-time Student	1	1	--	--	--	--	--	--	1	1	--	--
Retired	3	3	3	3	--	--	--	--	3	3	--	--
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 7. The group that best describes the camping party of questionnaire respondents.

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single Family	33	34	47	50	26	52	15	34	59	40	62	45
Two or more families	26	27	22	24	17	35	21	48	43	30	43	31
Group of friends	6	7	18	19	5	11	6	14	11	8	24	18
Organized group	31	32	6	7	1	2	2	4	32	21	8	6
One person	--	--	--	--	--	--	--	--	--	--	--	--
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 8. Size of city of origin of questionnaire respondents.

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Greater than 100,000	46	48	51	55	13	26	7	16	59	41	58	42
50,000 to 100,000	9	9	8	9	9	20	2	4	18	13	10	7
25,000 to 50,000	9	9	6	6	13	26	19	44	22	14	25	18
10,000 to 25,000	6	6	11	12	5	10	5	11	11	8	16	12
2,000 to 10,000	13	14	11	12	6	12	7	16	19	13	18	14
Rural	13	14	6	6	3	6	4	9	16	11	10	7
Total	96	100	93	100	49	100	44	100	145	100	137	100

Forty-eight percent of program attendees from Double Lake were employed full-time and 24% were full-time students. Sixty-eight percent of visitors surveyed that did not attend programs were also employed full-time but only 13% were full-time students (Table 6).

Forty-two percent of the campers at Double Lake were single family groups while only 34% of the people attending programs were in single family groups. This is explained by the fact that a group of Boy Scouts (multifamily) would be substantially larger in number than the average single family group and thus skew the results toward multifamily groups (Table 7).

Forty-eight percent of visitors from Double Lake Recreation Area that attended programs were from cities with a population greater than 100,000 as compared to 55% of visitors that did not attend programs (Table 8). Most visitors that were from cities with a population greater than 100,000 were from the Houston area.

Camping Experience

Results From Ratcliff Recreation Area

Most visitors in Ratcliff Recreation Area lived nearby or found out about the Recreation Area from friends (Table 9). Almost all of the visitors were there for one or two nights on the weekend (Table 10). Forty-five percent of Ratcliff visitors surveyed had over 15 years of camping experience and less than half of these experienced campers attended interpretive programs. Well over half of

Table 9. Responses to the question: "How did you find out about this recreation area?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
No answer	--	--	1	1	1	2	--	--	1	1	1	1
Brochures	6	7	3	3	2	4	--	--	8	6	3	2
Friends	48	50	51	55	24	48	19	43	72	50	70	51
Live Nearby	21	22	10	11	19	38	20	45	40	28	30	22
Local businessmen	--	--	--	--	--	--	--	--	--	--	--	--
USFS personnel	--	--	2	2	--	--	--	--	--	--	2	1
Road Map	4	5	7	8	1	2	2	5	5	3	9	7
Saw entrance sign and pulled in	15	16	3	3	--	--	1	2	15	10	4	3
Other	2	2	16	17	2	4	2	5	4	2	18	13
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 10. Length of stay of questionnaire respondents.

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1 Night	41	43	53	57	15	30	8	18	56	38	61	45
2 Nights	43	45	29	31	31	63	31	70	74	51	60	44
3 Nights	12	12	11	12	--	--	3	7	12	9	14	10
4 Nights	--	--	--	--	3	7	2	5	3	2	2	1
Total	96	100	93	100	49	100	44	100	145	100	137	100

those with less than 15 years of experience attended programs (Table 11). The percentage rate was moderately high for first time visitors at Ratcliff Recreation Area. Forty-two percent of the visitors to Ratcliff were there for the first time, of these, 54% attended programs which made up 44% of total program attendance (Table 12). Most visitors seemed to enjoy their visit (Table 13) and stated that they would return to the Recreation Area in the future (Table 14). However, actual data shows only 59% of visitors were return campers. Ninety-six percent of visitors who attended programs and 95% of visitors who did not attend programs also stated that they planned to visit other national forests and recreation areas in Texas (Table 15).

The most popular outdoor activities in which visitors had participated included fishing, swimming, developed camping, picnicking, and walking (Table 16). There were significantly more people who attended programs that participated in walking than those not attending programs.

Results From Double Lake Recreation Area

Most visitors in Double Lake Recreation Area found out about the area from friends (Table 9), and were there for only 1 or 2 nights on weekends (Table 10). The majority of visitors were experienced campers. Forty-nine percent of Double Lake visitors surveyed had over 15 years of camping experience. Forty-three percent of experienced campers attended programs and 46% did not (Table 11). For many visitors, it was their first time to camp in this Recreation Area. Forty-nine percent of visitors that attended programs and 45% of visitors who did not attend programs were camping at Double Lake for the first time (Table 12). Most visitors seemed to enjoy their stay (Table 13) and stated that they would return to the Recreation Area in the future (Table 14). Ninety-seven

Table 11. Responses to the question: "How many years have you been camping?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1 year	8	8	11	12	8	16	4	9	16	11	15	11
2-5 years	28	29	14	15	12	24	8	18	40	28	22	16
6-10 years	14	15	17	18	5	10	4	9	19	13	21	15
10-15 years	5	5	8	9	5	10	5	11	10	7	13	10
15+ years	41	43	43	46	19	40	23	53	60	41	66	48
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 12. Responses to the question: "How many times have you camped in this recreation area?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1 time	47	49	42	45	21	44	18	41	68	48	60	44
2-5 times	27	28	25	27	16	32	13	30	43	29	38	28
6-10 times	6	6	6	6	3	6	4	9	9	6	10	7
10 or more times	16	17	20	22	9	18	9	20	25	17	29	21
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 13. Camping experience ratings of questionnaire respondents.

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attend		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Excellent	38	40	35	37	24	48	20	46	62	43	55	40
Good	53	55	49	53	25	52	23	52	78	54	72	54
Fair	5	5	7	8	--	--	1	2	5	3	7	5
Poor	--	--	2	2	--	--	--	--	--	--	2	1
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 14. Responses to question: "Would you return to this recreation area?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Yes	92	96	88	95	49	100	44	100	141	98	132	96
No	4	4	5	5	--	--	--	--	4	2	5	4
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 15. Responses to question: "Do you plan to visit other National Forests or Recreation Areas in Texas?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Yes	93	97	89	96	47	96	42	95	140	96	131	95
No	3	3	4	4	2	4	2	5	5	4	6	5
Total	96	100	93	100	49	100	44	100	145	100	137	100

Table 16. Responses to question: " Mark each of the following types of outdoor recreation activities in which you have participated in the past year?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not		Attended		Did Not		Attended		Did Not	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Bicycling	56	58	44	47	28	56	17	39	84	57	61	44
Fishing	75	78	56	60	38	76	35	80	113	77	91	66
Bird watching	23	24	21	23	14	28	6	14	37	26	27	20
Snow skiing	3	3	6	6	4	8	--	--	7	5	6	4
Canoeing	44	46	26	28	24	28	7	16	68	46	33	24
Boating	44	46	44	47	29	58	23	52	73	50	67	50
Water skiing	17	18	11	12	7	14	5	11	24	17	16	12
Swimming	88	92	80	86	49	98	39	89	137	94	119	87
Camping (developed)	80	83	70	75	39	78	32	73	119	81	102	74
Camping (primitive)	33	34	34	37	17	34	16	36	50	34	50	36
Scuba diving	--	--	5	5	--	--	1	2	--	--	6	4
Motorcycle riding (ORV)	14	14	10	11	4	8	2	4	18	12	12	9
Ball games (baseball)	36	38	38	41	28	56	17	39	64	43	55	40
Golf	16	17	11	12	5	10	3	7	21	14	14	10

Continued

	Double Lake				Ratcliff				Overall			
	Attended		Did Not		Attended		Did Not		Attended		Did Not	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Horseback riding	24	25	15	16	10	20	5	11	34	23	20	15
Hiking or Backpacking	54	56	34	37	28	56	13	30	82	56	47	34
Hunting	20	21	25	27	16	32	16	36	36	24	41	30
Picnicking	65	68	63	68	37	74	28	64	102	70	91	66
Walking	75	78	65	70	47	94	26	59	122	84	91	66
Jogging	36	38	30	32	18	36	9	20	54	37	39	28
Nature study	28	29	21	22	14	28	6	14	42	29	27	20
Rock climbing	9	9	9	10	5	10	3	7	14	10	12	9
Rappelling	6	6	6	6	--	--	1	2	6	4	7	5
Photography	22	23	25	27	14	28	9	20	36	25	34	25
Tennis	12	12	10	11	15	30	5	11	27	19	15	11
Other	17	18	13	14	3	6	3	7	20	13	16	12

percent of visitors who attended programs and 96% of visitors who did not attend programs also stated that they planned to visit other national forests and recreation areas in Texas (Table 15).

The most popular outdoor activities in which visitors had participated included fishing, swimming, developed camping, picnicking, and walking (Table 16).

Environmental Awareness

Results From Ratcliff Recreation Area

Of the number of visitors that subscribed to or supported conservation oriented magazines, 38% attended programs and 52% did not attend programs (Figure 4; Appendix D). Sixteen percent of visitors that attended programs and 18% of visitors that did not attend programs stated that they had written to their congressman concerning an environmental issue. (Figure 5; Appendix D). Forty-seven percent of the visitors surveyed that attended programs and 40% of visitors surveyed that did not attend programs stated that they had contributed money for an environmental issue (Figure 6; Appendix D). Twenty-two percent of visitors that attended programs and 2% of visitors that did not attend programs stated that they had actively demonstrated an environmental issue (Figure 7; Appendix D). Most visitors were concerned but not really involved in environmental activity (Figure 8; Table 17). There were not many people who stated that they supported or contributed to conservation oriented magazines. The National Wildlife Federation, at 12%, had the highest percentage rate of the

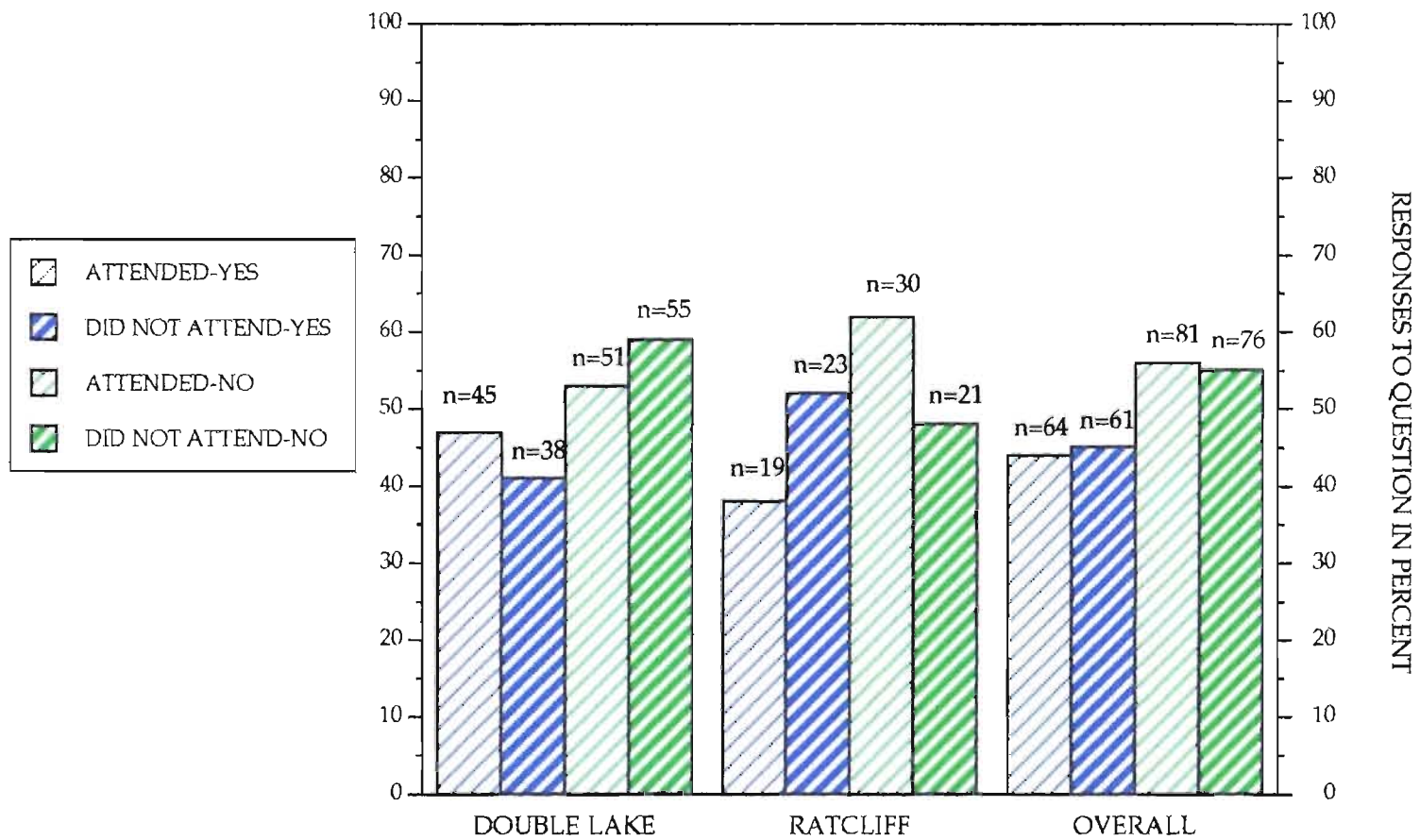


Figure 4. Responses to question: "Do you subscribe or contribute to conservation magazines?"

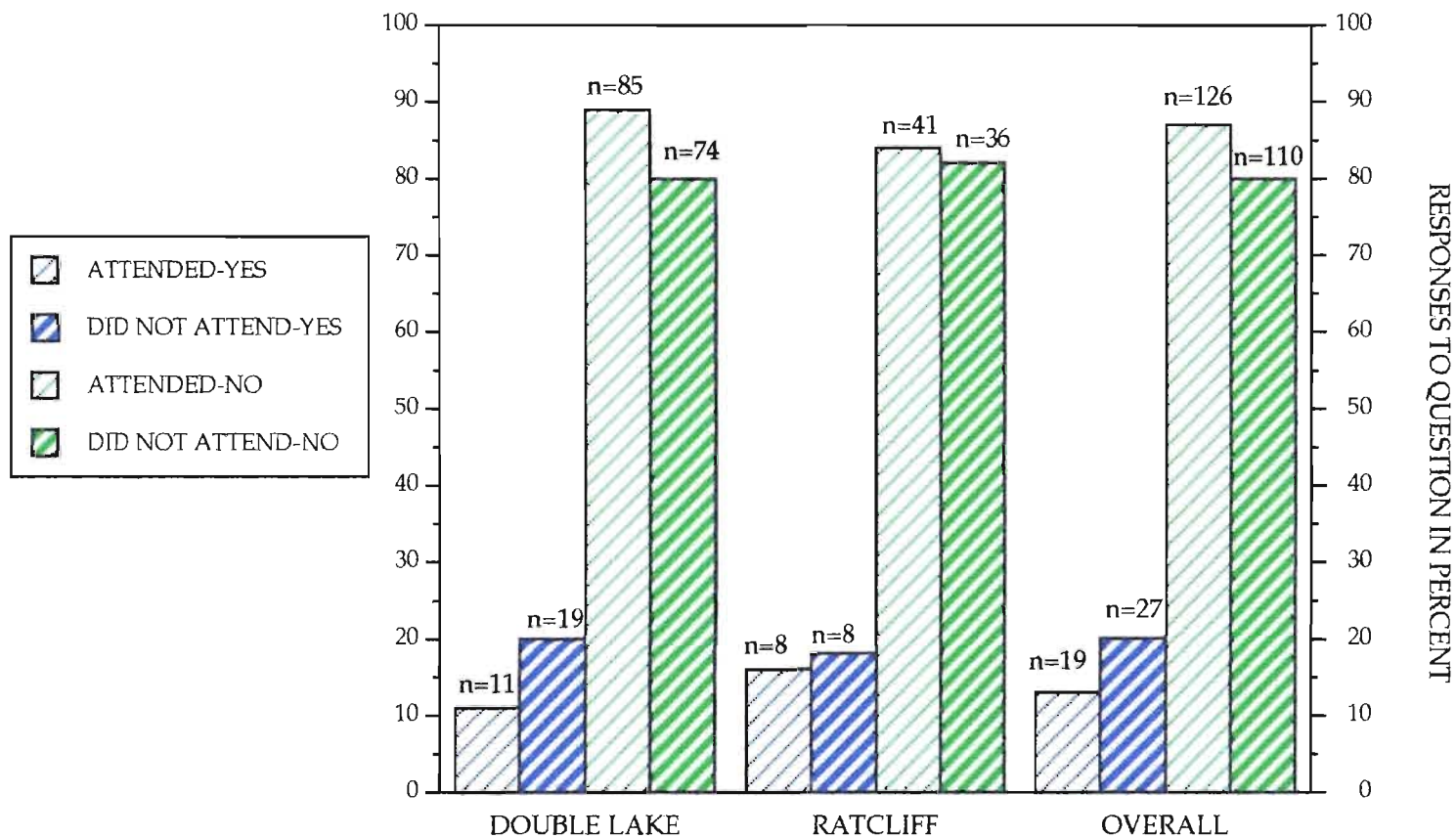


Figure 5. Responses to question: "Have you ever written to your congressman concerning an environmental issue?"

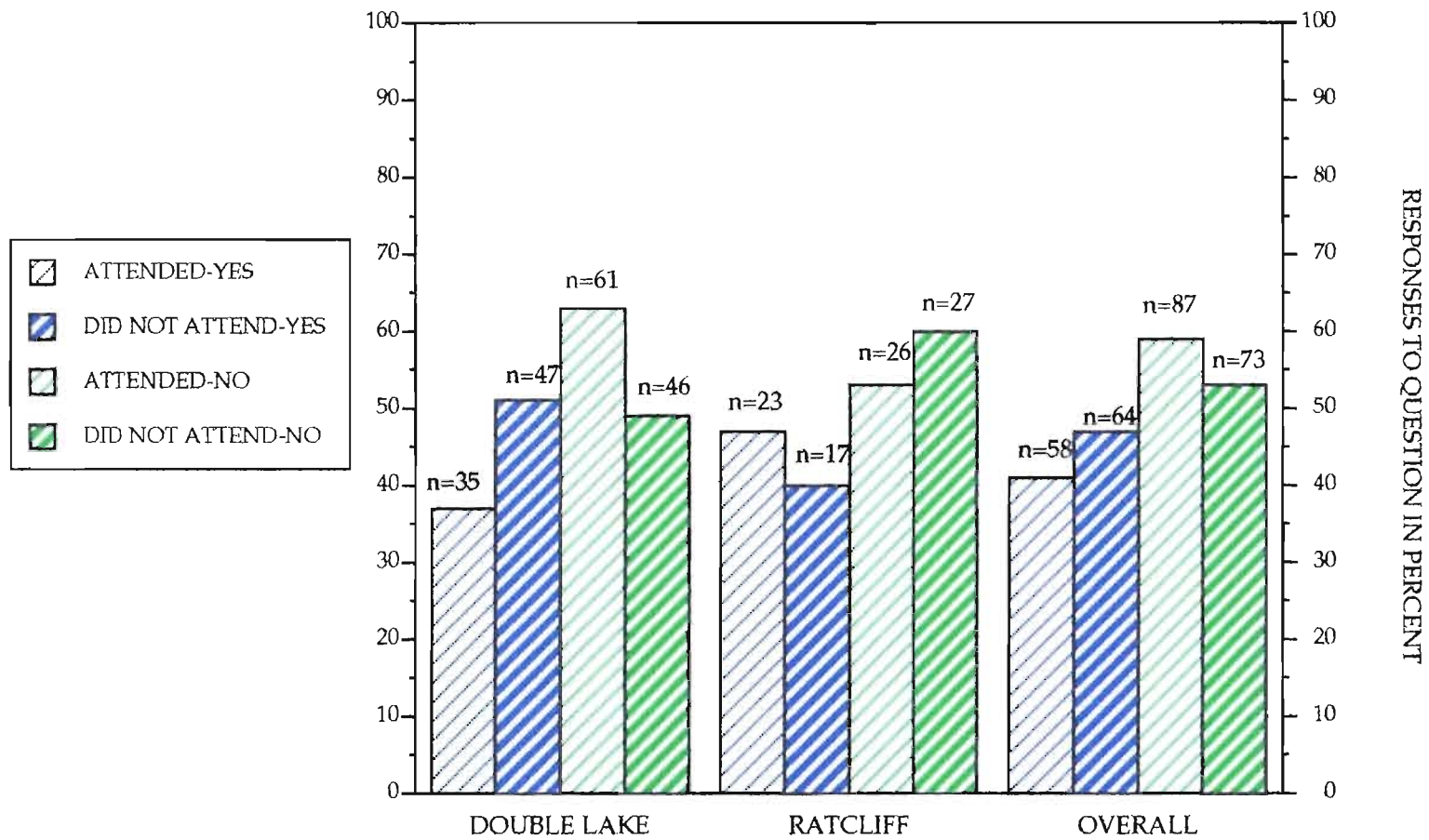


Figure 6. Responses to question: "Have you ever contributed money to an environmental issue?"

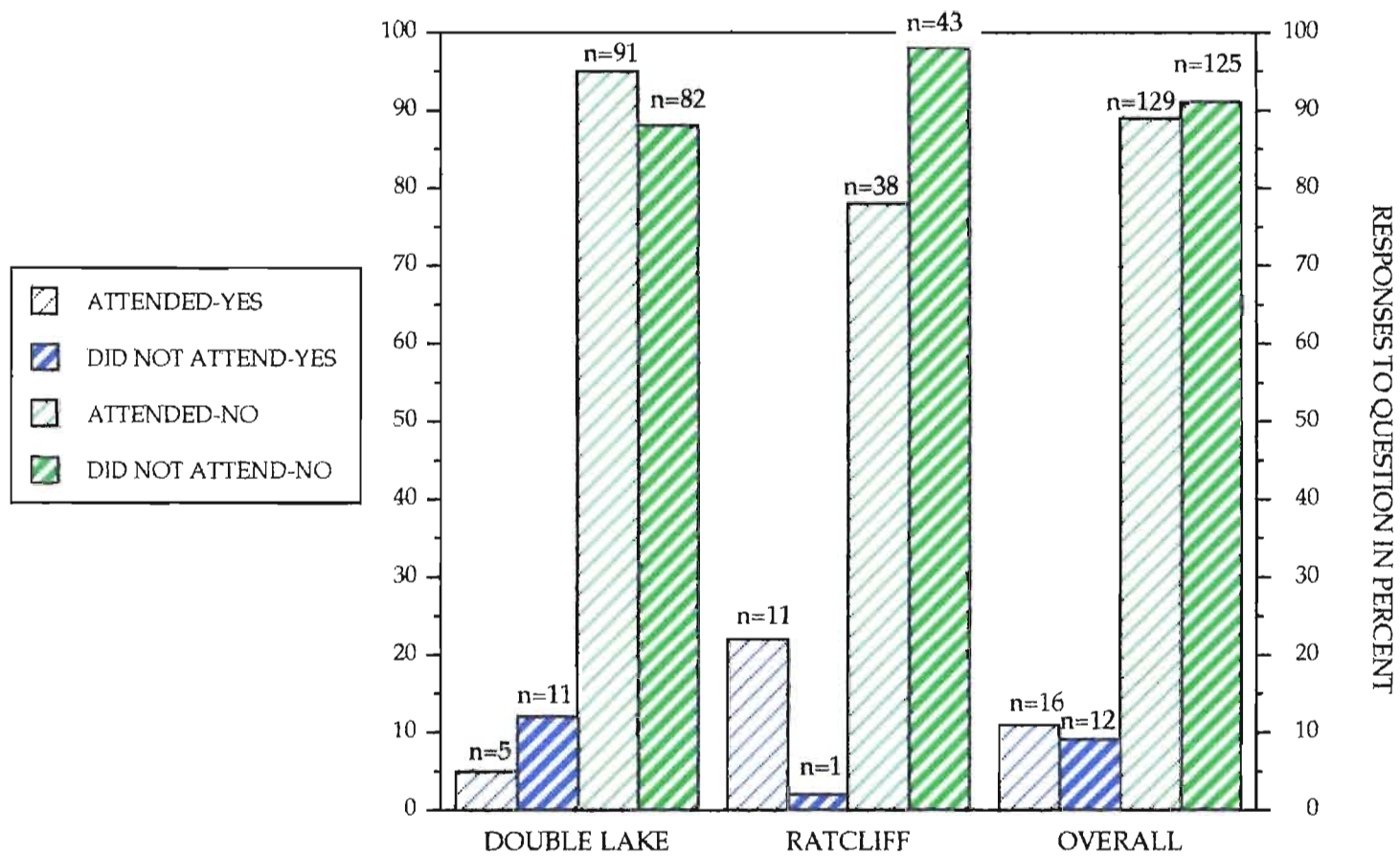


Figure 7. Responses to question: "Have you ever actively protested or demonstrated an environmental issue?"

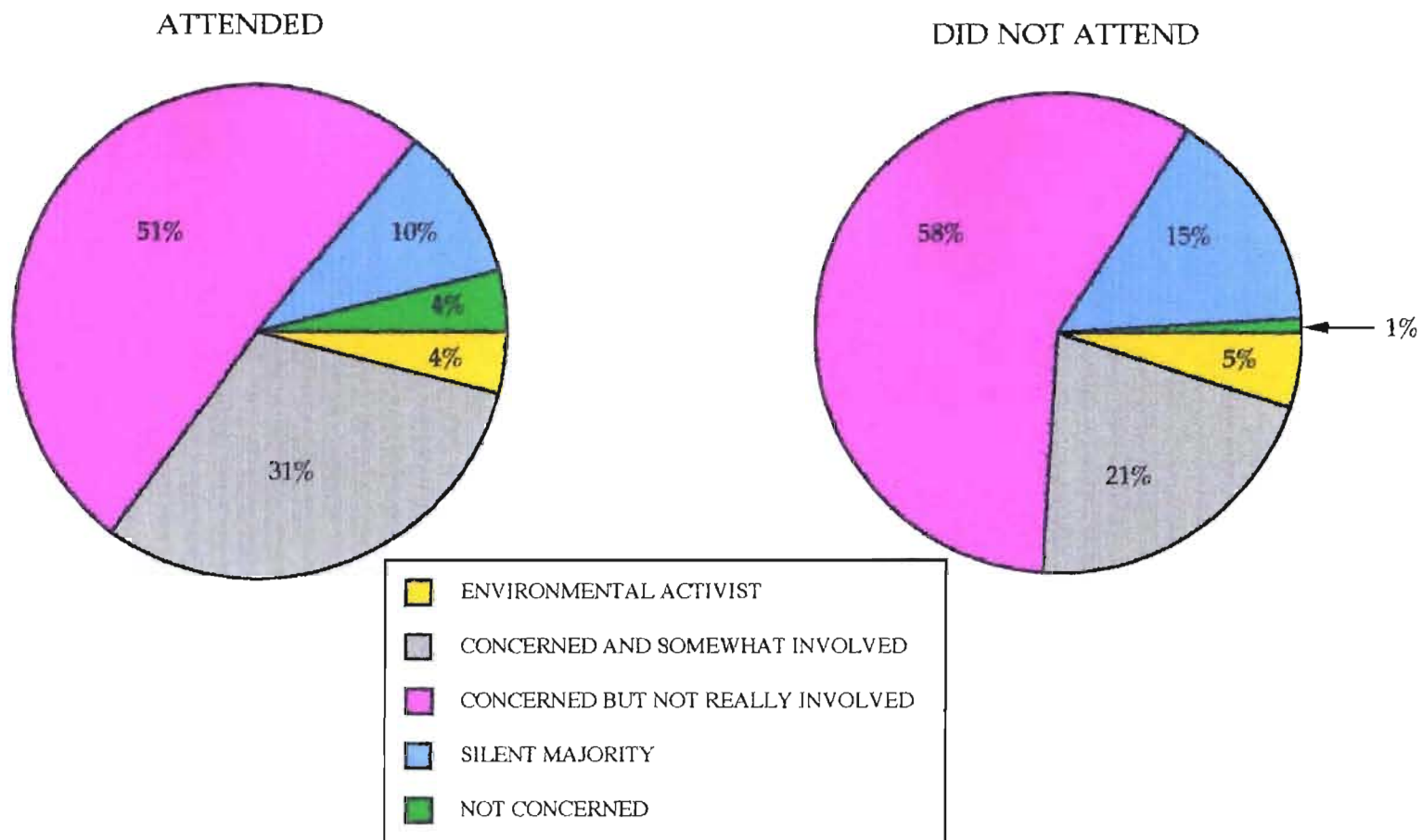


Figure 8. Environmental activity of questionnaire respondents from Double Lake and Ratcliff Recreation Areas.

Table 17. Environmental activity of questionnaire respondents

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attend		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
An environmental activist	5	5	7	8	--	--	--	--	5	4	7	5
Concerned and somewhat involved	25	26	17	18	17	36	12	27	42	31	29	21
Concerned but not really involved	55	57	57	61	19	38	23	52	74	51	80	58
Part of the silent majority	6	7	10	11	8	16	9	21	14	10	19	15
Not concerned	5	5	2	2	5	10	--	--	10	4	2	1
Total	96	100	93	100	49	100	44	100	145	100	137	100

conservation oriented magazines (Table 18).

Results From Double Lake Recreation Area

Of the number of visitors that subscribed to or supported conservation oriented magazines, 47% attended programs and 41% did not attend programs (Figure 4; Appendix D). Eleven percent of visitors that attended programs and 20% of visitors that did not attend programs had written to their congressman concerning an environmental issue (Figure 5; Appendix D). Thirty-seven percent of visitors that attended programs and 51% of visitors that did not attend programs said that they had contributed money for an environmental issue (Figure 6; Appendix D). Five percent of visitors that attended programs and 12% of visitors that did not attend programs stated that they had actively demonstrated for an environmental issue (Figure 7; Appendix D).

It appears that the majority of visitors who did not attend programs were more environmentally active than visitors that did attend programs. Most visitors stated that they were concerned but not really involved in environmental activity (Figure 8; Table 17). There were not many people who stated that they supported or contributed to conservation oriented magazines. The National Parks and Conservation Association at 10% had the highest percentage rate of the conservation oriented magazines (Table 18).

Table 18. Conservation oriented magazines visitors contribute to or support.

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
American Forestry Association	2	2	2	2	2	4	1	2	4	3	3	2
Audubon Society	2	2	6	6	1	2	--	--	3	2	6	4
Ducks Unlimited	7	7	7	8	3	6	2	4	10	7	9	7
Earth First!	2	2	6	6	5	10	1	2	7	5	7	5
National Parks and Conservation Association	2	2	9	10	4	8	1	2	6	4	10	7
National Wildlife Federation	6	6	7	8	6	12	1	2	12	8	8	6
Nature Conservancy	--	--	5	3	4	8	--	--	4	3	5	4
Sierra Club	1	1	6	6	4	8	--	--	5	3	6	4
Society of American Foresters	1	1	1	1	1	2	--	--	2	1	1	1
Texas Committee on Natural Resources	--	--	2	2	3	6	--	--	3	2	2	1
Texas Forestry Association	5	5	5	5	5	10	1	2	10	7	6	4
Other	14	14	7	8	6	12	1	2	20	14	8	6

Interpretive Programs

Results From Ratcliff Recreation Area

Fifty-three percent of visitors to Ratcliff Recreation Area attended interpretive programs, and they rated most of the programs as either excellent or good (Figure 9; Appendix D). Saturday evening programs had higher attendance and were much more popular than Friday evening programs, morning walks and Junior Ranger programs (Figure 10; Appendix D). The primary reason that Friday evening programs had less attendance than Saturday evening programs was that most visitors did not arrive until late Friday evening and were busy setting up camp during the same time that the evening program was being presented.

Fifty-seven percent of the people who attended interpretive programs said that they found out about the programs from the ranger/naturalists that came by their campsite (Figure 11; Appendix D). Twenty-three percent of visitors stated the main reason for not attending was not having enough time to go (Figure 12; Appendix D).

Visitors were also asked if they attended programs in other parks or recreation areas (Table 19). Most visitors who attended programs in Ratcliff Recreation Area usually attended programs in other parks and recreation areas as well. Visitors who did not attend programs at Ratcliff Recreation Area usually did not attend programs at other parks and recreation areas either.

Results From Double Lake Recreation Area

Fifty-one percent of visitors to Double Lake Recreation Area attended interpretive programs, they rated most of the programs as either excellent or

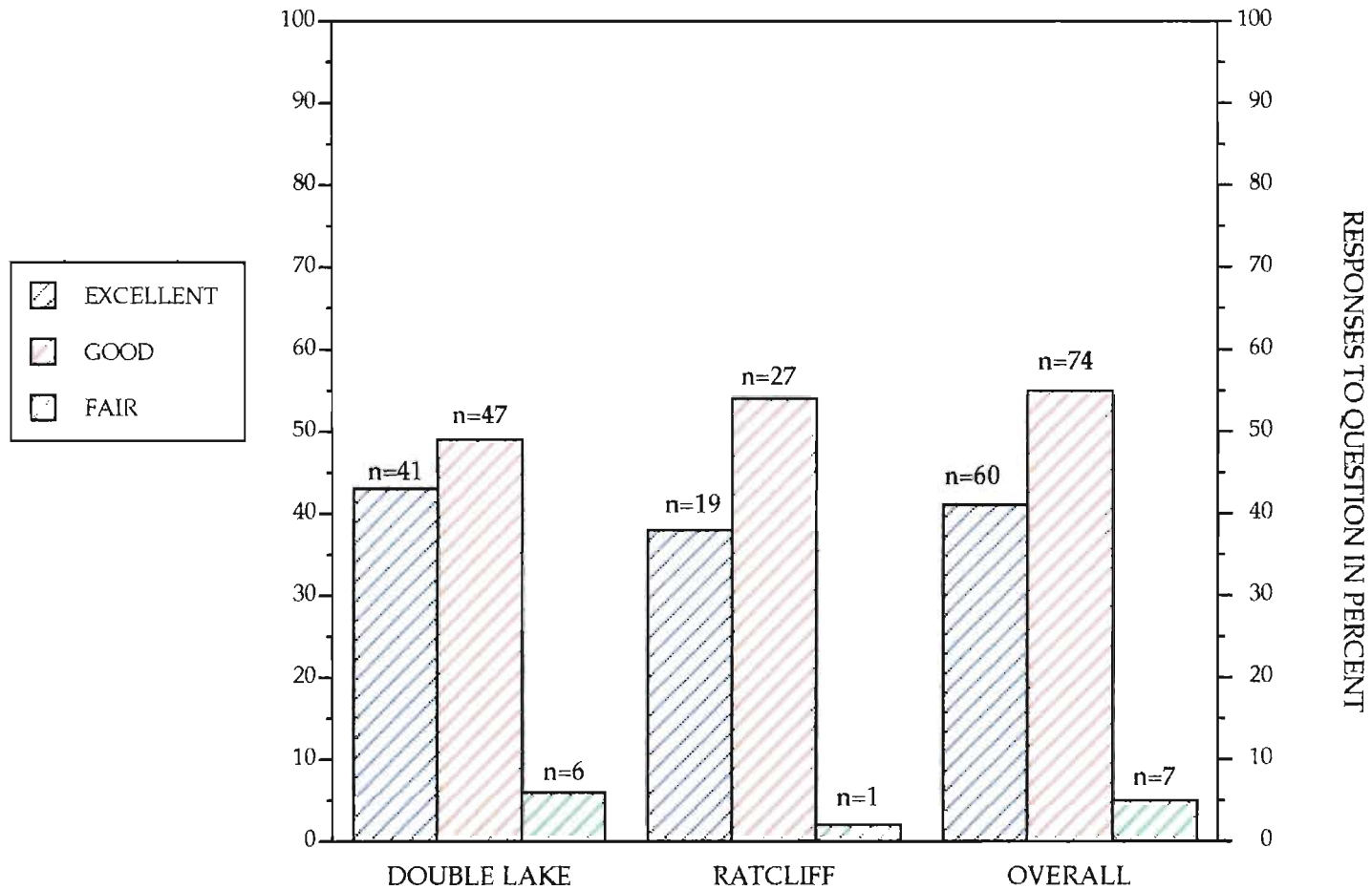


Figure 9. Response to question: "How would you rate the overall presentation of the interpretive program?"

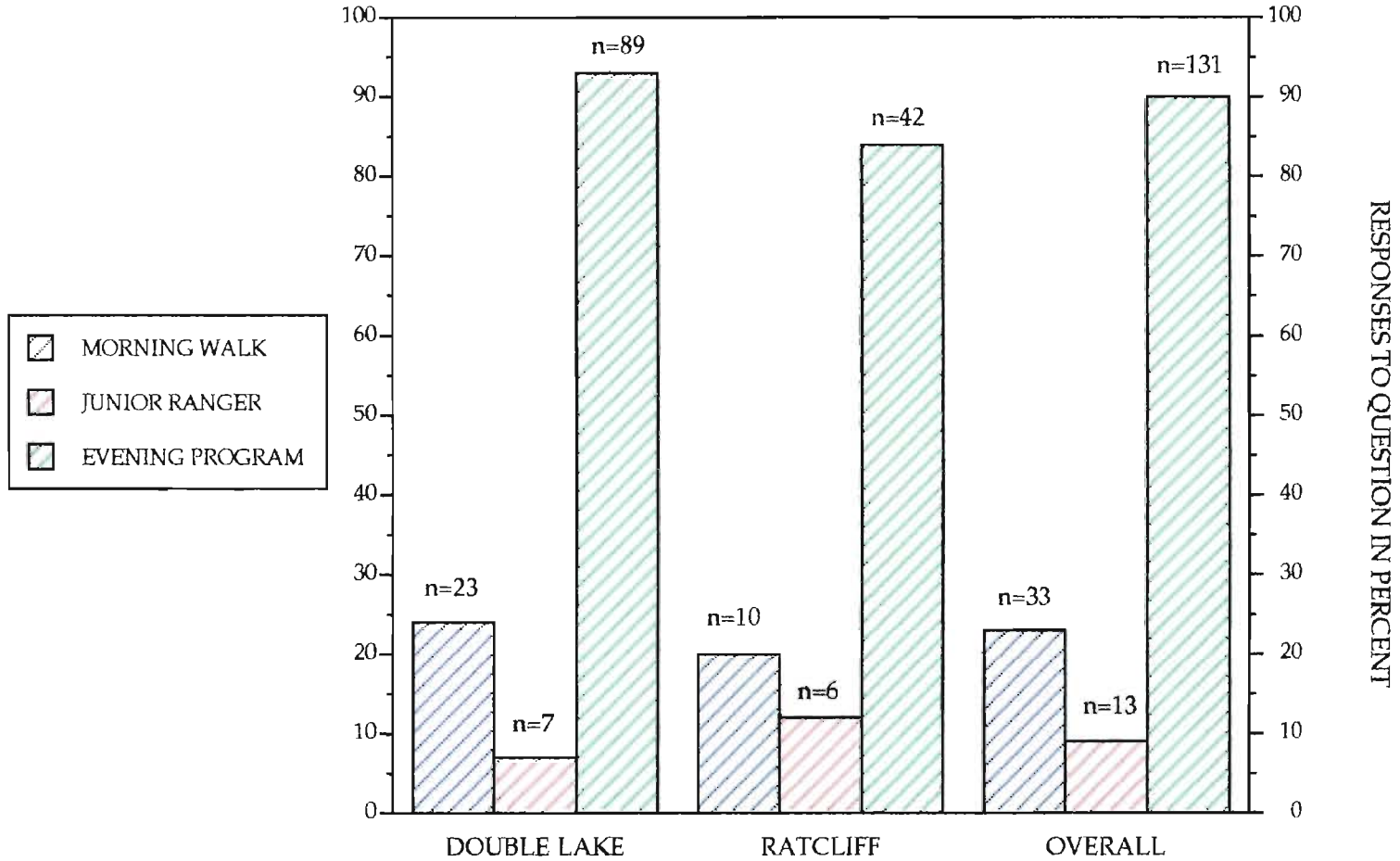


Figure 10. Types of programs attended by questionnaire respondents.

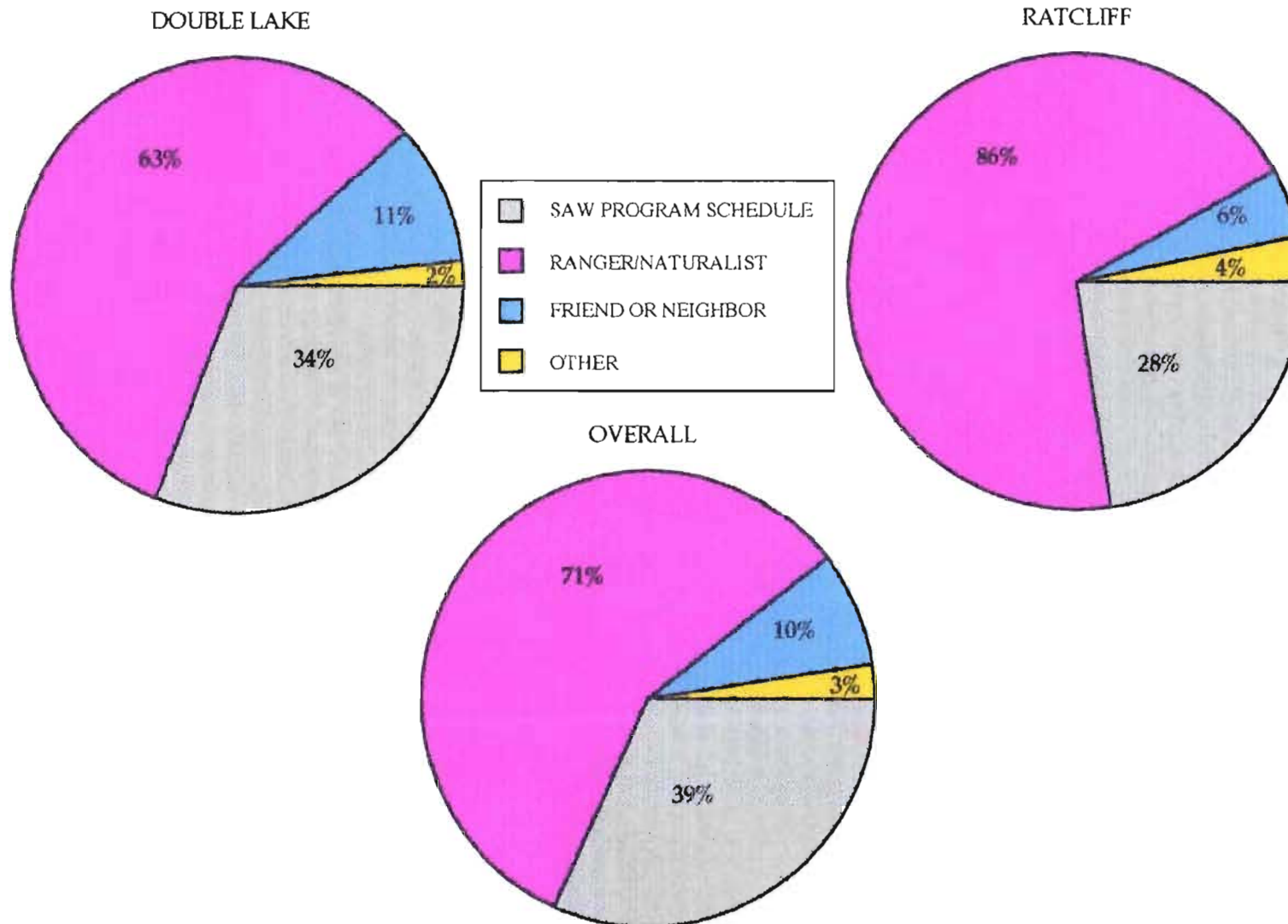


Figure 11. Responses to question: "How did you find out about the interpretive programs?"

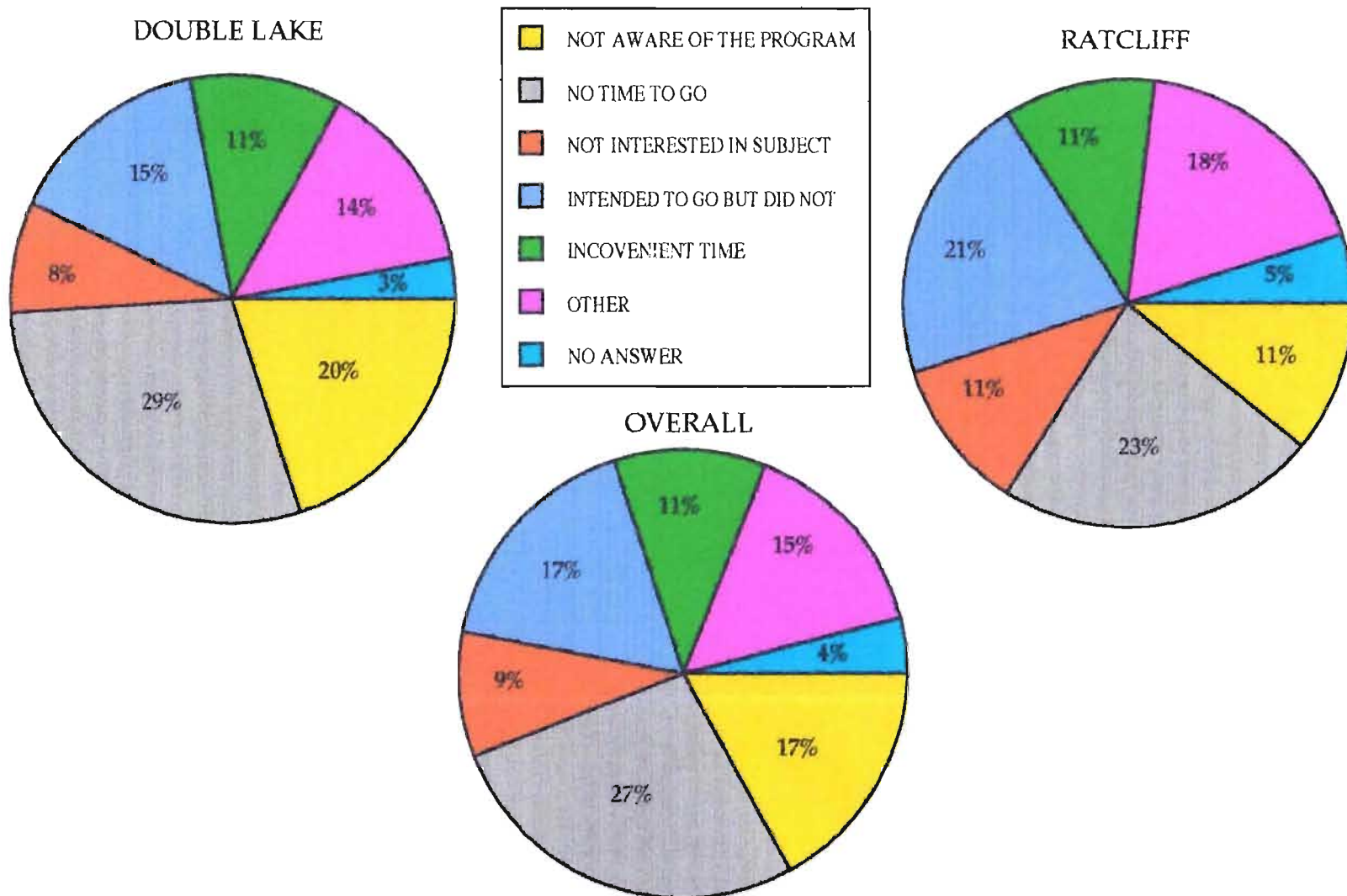


Figure 12. Reasons that were given by questionnaire respondents for not attending interpretive programs.

Table 19. Responses to question: "Do you attend programs in other parks or recreation areas?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Yes	62	65	24	26	25	51	6	14	87	60	29	21
No	34	35	69	74	24	49	38	86	58	40	108	79
Total	96	100	93	100	49	100	44	100	145	100	137	100

good (Figure 9; Appendix D). Saturday evening programs had higher attendance and were much more popular than Friday evening programs, morning walks and Junior Ranger programs (Figure 10; Appendix D). The primary reason that Friday evening programs had less attendance than Saturday evening programs was that most visitors did not arrive until late Friday evening and were busy setting up camp during the same time that the evening program was being presented.

Fifty-seven percent of the people who attended interpretive programs said that they found out about the programs from the ranger/naturalists that came by their campsite (Figure 11; Appendix D). Twenty-three percent of visitors stated the main reason for not attending as not having enough time to go (Figure 12; Appendix D).

Visitors were also asked if they attended programs in other parks or recreation areas (Table 19). Most visitors who attended programs in Double Lake Recreation Area usually attended programs in other parks and recreation areas as well. Visitors who did not attend programs at Double Lake Recreation Area usually did not attend programs at other parks and recreation areas either.

Opinions Of National Forest Management Activities

The last segment of the survey dealt with questions concerning opinions on whether National Forests should be managed or should nature be allowed to take its course. Some of the issues dealing with forest management concepts included: management of natural resources and who should be allowed to make

management decisions, public involvement, endangered species, recreation management, wildlife management, the use of fire, and protection of forests from insects and disease (Table 20).

The percentages dealing with these questions will not always add up to one hundred percent because the number of visitors who did not respond to a question were not added into the narrative explanations in the text, but the total results calculated on the tables do add up to one hundred percent.

Results From Ratcliff Recreation Area

Ninety-eight percent of program attendees and 93% of non program attendees believe that national forest lands should be managed. However, many of the same visitors wanting management in national forests also stated that nature should be allowed to take its course. Sixty-five percent of program attendees agreed, 18% disagreed, and 15% had no opinion on allowing nature to take its course. Of the non program attendees, 47% agreed, 26% disagreed, and 20% had no opinion on allowing nature to take its course.

Visitors were also asked if they thought that humans must manage their natural resources in order to ensure future availability of these resources. Eighty-nine percent of visitors attending programs agreed, and 91% of the visitors that did not attend programs agreed.

When asked if they thought that only trained personnel should make natural resource management decisions, 61% of program attendees agreed, 23% disagreed, and 16% had no opinion. Of the non-program attendees, 68% agreed, 18% disagreed, and 9% had no opinion on this issue.

Public Involvement

There were two questions concerning the general public and forest

Table 20. Questionnaire responses to National Forest management activities.

Double Lake Program Attendees	<u>Agree</u>		<u>No Opinion</u>		<u>Disagree</u>		<u>No Response</u>	
	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>
National Forests should be managed	75	78	5	5	4	4	12	13
The publics wishes are not considered by natural resource managers	14	14	24	25	43	45	15	16
Wildlife management is not needed	4	4	1	1	78	81	13	14
Wildlife will flourish without the help of humans	23	24	14	14	46	48	13	14
Endangered species should be protected	75	78	2	2	6	6	13	14
Endangered species' habitat should be managed for their benefit	70	73	4	4	9	9	13	14
Recreation managers should have the authority to close overused campsites for periods of time	57	59	14	15	12	12	13	14
Recreation managers should be able to limit the number of visitors to overused areas	59	61	12	13	12	12	13	14
Humans must manage their natural resources in order to ensure future availability of these resources	52	75	5	5	4	4	15	16
Nature should be allowed to take its course	47	49	18	19	19	20	12	12

Table 20. Questionnaire responses to National Forest management activities continued.

Double Lake Program Attendees	<u>Agree</u>		No <u>Opinion</u>		<u>Disagree</u>		No <u>Response</u>	
	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>
The general public is not well enough informed to have input in natural resource management	33	34	23	24	26	27	14	15
Natural resource managers should do all in their power to protect the forest from insects and disease	57	59	12	13	13	12	14	15
Only trained personnel should make natural resource management decisions	36	48	20	21	16	16	14	15
Fire in a natural and necessary part of forest lands	54	57	12	12	16	16	14	15
We should use fire as a management tool in national forests	51	54	16	16	16	16	13	14

Table 20. Questionnaire responses to National Forest management activities.

Double Lake Non Program Attendees	<u>Agree</u>		<u>No Opinion</u>		<u>Disagree</u>		<u>No Response</u>	
	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>
National Forests should be managed	82	88	--	--	2	2	9	10
The publics wishes are not considered by natural resource managers	18	19	27	29	35	38	13	14
Wildlife management is not needed	5	5	3	3	74	80	11	12
Wildlife will flourish without the help of humans	24	26	4	4	52	56	13	14
Endangered species should be protected	78	83	3	3	--	--	12	13
Endangered species' habitat should be managed for their benefit	71	76	8	9	2	2	12	13
Recreation managers should have the authority to close overused campsites for periods of time	58	63	14	15	8	8	13	14
Recreation managers should be able to limit the number of visitors to overused areas	67	72	9	10	5	5	12	13
Humans must manage their natural resources in order to ensure future availability of these resources	76	82	4	4	1	1	12	13
Nature should be allowed to take its course	51	55	15	16	13	14	14	15

Table 20. Questionnaire responses to National Forest management activities continued.

Double Lake Non Program Attendees	<u>Agree</u>		<u>No Opinion</u>		<u>Disagree</u>		<u>No Response</u>	
	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>
The general public is not well enough informed to have input in natural resource management	37	40	19	20	23	25	14	15
Natural resource managers should do all in their power to protect the forest from insects and disease	59	63	15	16	7	8	12	13
Only trained personnel should make natural resource management decisions	49	53	15	16	17	18	12	13
Fire in a natural and necessary part of forest lands	41	43	20	22	20	22	12	13
We should use fire as a management tool in national forests	39	42	21	22	21	23	12	13

Table 20. Questionnaire responses to National Forest management activities.

Ratcliff Program Attendees	<u>Agree</u>		<u>No Opinion</u>		<u>Disagree</u>		<u>No Response</u>	
	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>
National Forests should be managed	48	98	1	2	--	--	--	--
The public's wishes are not considered by natural resource managers	8	16	11	23	29	59	1	2
Wildlife management is not needed	5	11	4	9	40	80	--	--
Wildlife will flourish without the help of humans	27	35	4	8	27	55	1	2
Endangered species should be protected	46	94	--	--	1	2	2	4
Endangered species' habitat should be managed for their benefit	44	90	4	8	--	--	1	2
Recreation managers should have the authority to close overused campsites for periods of time	39	79	7	15	2	4	1	2
Recreation managers should be able to limit the number of visitors to overused areas	38	77	6	12	5	11	--	--
Humans must manage their natural resources in order to ensure future availability of these resources	44	89	4	9	1	2	--	--
Nature should be allowed to take its course	32	65	7	15	9	18	1	2

Table 20. Questionnaire responses to National Forest management activities continued.

Ratcliff Program Attendees	<u>Agree</u>		No		<u>Disagree</u>		No	
	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>
The general public is not well enough informed to have input in natural resource management	22	45	13	27	12	24	2	4
Natural resource managers should do all in their power to protect the forest from insects and disease	38	77	3	6	8	17	--	--
Only trained personnel should make natural resource management decisions	30	61	8	16	11	23	--	--
Fire in a natural and necessary part of forest lands	30	62	9	18	8	16	2	4
We should use fire as a management tool in national forests	31	63	11	23	6	12	1	2

Table 20. Questionnaire responses to National Forest management activities.

Ratcliff Non Program Attendees	<u>Agree</u>		<u>No</u>		<u>Disagree</u>		<u>No</u>	
	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>
National Forests should be managed	41	93	1	2	--	--	2	5
The publics wishes are not considered by natural resource managers	5	11	15	34	21	48	3	7
Wildlife management is not needed	1	2	--	--	41	93	2	5
Wildlife will flourish without the help of humans	8	18	4	9	30	68	2	5
Endangered species should be protected	40	91	--	--	2	4	2	5
Endangered species' habitat should be managed for their benefit	40	90	2	5	--	--	2	5
Recreation managers should have the authority to close overused campsites for periods of time	33	75	5	11	4	9	2	5
Recreation managers should be able to limit the number of visitors to overused areas	35	80	3	6	4	9	2	5
Humans must manage their natural resources in order to ensure future availability of these resources	40	91	1	2	1	2	2	5
Nature should be allowed to take its course	21	47	9	20	11	26	3	7

Table 20. Questionnaire responses to National Forest management activities continued.

Ratcliff Non Program Attendees	<u>Agree</u>		No		<u>Disagree</u>		No	
	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>	<u>Freq.</u>	<u>%</u>
The general public is not well enough informed to have input in natural resource management	12	27	11	25	19	44	2	4
Natural resource managers should do all in their power to protect the forest from insects and disease	33	75	4	9	5	11	2	5
Only trained personnel should make natural resource management decisions	30	68	4	9	8	18	2	5
Fire in a natural and necessary part of forest lands	21	48	8	18	12	27	3	7
We should use fire as a management tool in national forests	24	54	10	23	8	18	2	5

management. Visitors were asked if they felt the general public's wishes were considered by natural resource managers. Fifty-nine percent of the visitors that attended programs agreed, 16% disagreed, and 23% had no opinion. Of the visitors that did not attend programs, 48% agreed, 11% disagreed, and 34% had no opinion in that the public's wishes are considered by natural resource managers. Visitors were also asked if they thought that the general public was well enough informed to have input in natural resource management decisions. Only 24% of the visitors that attended programs agreed, while 45% disagreed, and 27% had no opinion. Forty-four percent of the visitors that did not attend programs agreed, with only 27% disagreeing, and 25% had no opinion that the general public was well enough informed to have input in natural resource management decisions.

Endangered Species

In the statement that endangered species should be protected, 94% of program attendees agreed and 91% of the non-program attendees agreed. Another question pertaining to endangered species stated that endangered species' habitat should be managed for their benefit. Ninety percent of program attendees and non-program attendees agreed.

Recreation Impacts

The question dealing with issues concerning recreation management stated that recreation managers should have the authority to close overused campsites for periods of time. Seventy-nine percent of the program attendees agreed and 75% of the non-program attendees agreed. When asked if recreation managers should be able to limit the number of visitors to overused areas, 77% of program attendees and 80% of the non-program attendees agreed.

Forest Resource Protection

In relation to control of insects and disease, visitors were asked if natural resource managers should do all in their power to protect the forest from insect and disease. Seventy-seven percent of program attendees and 75% of those not attending programs agreed.

On the issues dealing with fire management, visitors were asked if they thought fire was a natural and necessary part of forest lands. Of the program attendees, 62% agreed, 16% disagreed, and 18% had no opinion, and of the non-program attendees, 48% agreed, 27% disagreed, and 18% had no opinion on this issue. Another question pertaining to fire management stated that we should use fire as a management tool in national forests. Program attendees response was that: 63% agreed, 12% disagreed, and 23% had no opinion and non-program attendees response was that: 54% agreed, 18% disagreed, and 23% had no opinion on the use of fire as a management tool. The program attendees response in favor of fire management was higher than that of non-program attendees which could be related to an interpretive presentation on use of fire in the forest.

Wildlife Management

Two questions on the survey dealt with wildlife management. One question stated: wildlife management is not needed. In response to this question only 11% of visitors that attended programs agreed, 80% disagreed, and 1% had no opinion. Of the visitors not attending programs, 2% agreed and 93% disagreed, on the wildlife management issue. Visitor response to this question showed strong preference for management activities. The second wildlife management question stated that wildlife would flourish without the help of

humans. Thirty-five percent of people attending programs agreed, 55% disagreed, and 8% had no opinion. Of the non-program attendees 18% agreed, 68% disagreed and 9% had no opinion on the previous statement.

Seventy-two percent of visitors that attended programs and 89% of visitors that did not attend programs in Ratcliff recreation area stated that they thought national forests were being managed properly (Table 21).

Results From Double Lake Recreation Area

Seventy-eight percent of program attendees and 88% of non-program attendees believe that national forest lands should be managed. However, many of the same visitors wanting national forests to be managed also stated that nature should be allowed to take its course. Forty-nine percent of program attendees agreed, 20% disagreed, and 19% had no opinion on allowing nature to take its course. Of the non-program attendees, 55% agreed, 14% disagreed, and 16% had no opinion on allowing nature to take its course.

These results show that many people may not understand the concept of management. They may also want the environment to be managed by natural occurrences to a certain extent before man intervenes. Many people do not realize that with population increase, forest types and wildlife habitats decline. And although visitors may want nature to take its course, they also know that we must have some type of forest management in order to preserve species diversity and forest types.

Visitors were asked if they thought that humans must manage their natural resources in order to ensure future availability of these resources. Seventy-five percent of visitors attending programs agreed, and 82% of the visitors that did not attend programs agreed.

Table 21. Responses to question: "Do you think that National Forests are being managed properly?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attend		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Yes	70	73	58	62	36	72	39	89	106	73	97	70
No	26	27	12	13	6	13	2	4	32	23	14	11
No Opinion	--	--	23	25	7	15	3	7	7	4	26	19
Total	96	100	93	100	49	100	44	100	145	100	137	100

When asked if they thought that only trained personnel should make natural resource management decisions, 48% of program attendees agreed, 16% disagreed, and 21% had no opinion. Of the non-program attendees, 53% agreed, 18% disagreed, and 16% had no opinion on this issue.

Public Involvement

There were two questions on the survey concerning the general public and forest management. Visitors were asked if they thought that the general public's wishes were considered by natural resource managers. Of the visitors attending programs, 45% agreed, 14% disagreed, and 25% had no opinion. Of the visitors that did not attend programs, 38% agreed, 19% disagreed, and 29% had no opinion in that the public's wishes are considered by natural resource managers. Visitors were also asked if they thought that the general public was well enough informed to have input in natural resource management decisions. Twenty-seven percent of the visitors that attended programs agreed, 34% disagreed, and 24% had no opinion. And of those visitors that did not attend programs, 25% agreed, 40% disagreed, and 20% had no opinion in that the general public was well enough informed to have input in natural resource management decisions.

Endangered Species

In the statement that endangered species should be protected, 78% of program attendees agreed, 6% disagreed, and 2% had no opinion. Of the non-program attendees, 83% agreed and 3% had no opinion. Another question concerning endangered species was stated as: endangered species' habitat should be managed for their benefit. The response of program attendees was that 73% were in agreement, 9% disagreed and 4% had no opinion, and of the non-program attendees, 76% agreed, 2% disagreed and 9% had no opinion.

Recreation Impacts

Issues concerning recreation management stated that recreation managers should have the authority to close overused campsites for periods of time. Fifty-nine percent of program attendees agreed, 12% disagreed, and 15% had no opinion. Of the non-program attendees 63% agreed, 8% disagreed, and 15% had no opinion over recreation managers' authority on overused campsites. When asked if recreation managers should be able to limit the number of visitors to overused areas, 61% of program attendees agreed, 12% disagreed, and 13% had no opinion, and of the non-program attendees, 82% agreed, 1% disagreed, and 4% had no opinion.

Forest Resource Protection

In relation to control of forest insects and disease, visitors were asked if natural resource managers should do all in their power to protect the forest from insect and disease. Fifty-nine percent of program attendees agreed, 13% disagreed, and 13% had no opinion, and of the non-program attendees, 63% agreed, 8% disagreed, and 16% had no opinion.

Fire management was also one aspect of forest management included in the survey. This question was asked to obtain an understanding of how much visitors know about fire. Visitors were asked if they thought fire was a natural and necessary part of forest lands. Of the program attendees, 57% agreed, 16% disagreed, and 12% had no opinion, and of the non-program attendees, 43% agreed, 22% disagreed, and 22% had no opinion on fire being a natural and necessary part of forest lands. A question pertaining to fire management stated that we should use fire as a management tool in national forests. Of the program attendees; 54% agreed, 16% disagreed, and 16% had no opinion, and non-

program attendees: 42% agreed, 23% disagreed, and 22% had no opinion on this statement. The program attendees response to fire being used as a management tool was significantly higher than non-program attendees responses which could be related to the fire ecology interpretive program. This shows that education does help.

Wildlife Management

Two questions on the survey pertained to wildlife management. One question was worded as: wildlife management is not needed. In response to this question, only 4% of visitors that attended programs agreed, 81% disagreed, and 1% had no opinion. Of the visitors not attending programs, 5% agreed, 80% disagreed, and 3% had no opinion on the wildlife management issue. Visitor response to this question showed preference for management activities. The second question stated that wildlife would flourish without the help of humans. Twenty-four percent of people attending programs agreed, 48% disagreed, and 14% had no opinion. Of the non-program attendees 26% agreed, and 56% disagreed with the previous statement.

Seventy-three percent of visitors that attended programs and 62% of visitors that did not attend programs in Double Lake Recreation Area stated that they thought national forests were being managed properly. Twenty-five percent of non-program attendees had no opinion on this issue (Table 29).

DISCUSSION

Statistical tables of confidence limits for percentages (Rohlf and Sokal 1969) were used to compare percentages of different populations in Ratcliff and Double Lake Recreation Areas. The ninety-five percent confidence level for a binomial distribution was used in determining any significant differences between percentages of different population sample size.

Demographics Of Visitors

The majority of visitors in both recreation areas were tent campers on a weekend excursion. No significant differences were found between the percentage of tent campers at Ratcliff and Double Lake or between those who did or did not attend interpretive programs. However, there was a significant difference between Ratcliff visitors and Double Lake visitors in vacation and stop over between destinations. Although the percentages were low for visitors who stated that they were there for a vacation, Ratcliff visitor response was significantly higher than the response from Double Lake visitors. The reverse was the case in the response to stop over between destinations. This response was also low but there were no visitors at Ratcliff who stated that they were there in-between destinations.

There were significantly more travel trailers at Ratcliff than Double Lake

Recreation Area as would be expected since Ratcliff had a camping loop with electrical hookups. Tent trailers and travel trailers at Ratcliff were used more often by visitors not attending programs than by visitors that did attend programs. It was observed on many occasions by ranger/naturalists that many people in trailers had portable televisions and radios to occupy their time. This possibly may have been the reason those visitors did not attend interpretive programs.

Employment status of Recreation Area visitors was predominantly full-time. There were no significant differences between Ratcliff and Double Lake visitors regarding employment status. The number of full-time students attending programs at Double Lake Recreation Area was higher than that of full-time students not attending programs. There were no significant differences in full-time students who attended and did not attend programs at Ratcliff Recreation Area. The percentage of retired people visiting both Recreation Areas was very low. Lack of accommodations for large motor homes and recreation area locations may contribute to the low percentages of retired people.

The average income of visitors to Double Lake Recreation Area was higher than the average income of visitors to Ratcliff Recreation Area. More Ratcliff visitors who attended programs made \$25,000 dollars or less, which was significantly lower than Double Lake program attendees and non-program attendees. The average income for Double Lake visitors and Ratcliff non-program attendees was \$25,000 to \$49,000. A significantly larger number of Ratcliff visitors who did not attend programs stated that their income level was between \$50,000 and \$75,000.

There was no significant differences in education levels between the two

Recreation Areas. However, Double Lake visitors who did not attend programs had more college education than Double Lake visitors who did attend programs. One reason for this could be that many of the people surveyed who attended programs were Boy Scouts who were not yet old enough to attend college.

Most visitors in each Recreation Area were single family groups. Double Lake program attendees had a significantly higher number of organized groups over Double Lake non-program attendees and Ratcliff visitors. The main reason for this was Boy Scout troops. Double Lake has seven group camp sites which accommodated many Boy Scout troops throughout the summer. A high percentage of these Boy Scout troops attend interpretive programs for merit badges.

A large majority of visitors to Double Lake Recreation Area were from cities with populations greater than 100,000. Most of these visitors were from the Houston area. Most visitors to Ratcliff Recreation Area were from cities with a population less than 100,000. A significantly larger number of non-program attendees at Ratcliff were from cities with a population of 25,000 to 50,000 than those who attended programs, but a larger number of program attendees were from cities with a population of 50,000 to 100,000. Studies have shown that visitors are willing to travel certain distances from their homes for different periods of time. Most people will travel up to 150 miles for a weekend trip, but anything over that could be considered a vacation. This would explain why Double Lake visitors were more of an urban population and Ratcliff visitors were more of a rural population.

Most visitors found out about both Recreation Areas from friends. More Ratcliff visitors lived nearby and had previously known about the Recreation

Area than Double Lake visitors. There was however, a significant difference between Double Lake program attendees and non-program attendees in that more program attendees lived nearby than non-program attendees. One interesting observance was the significant difference between Double Lake program attendees over other visitors surveyed in that some Double Lake program attendees stated they found out about the Recreation Area when they saw the entrance sign and pulled in. According to this survey, a very small percentage of visitors found out about the Recreation Areas through brochures and USFS personnel. This shows that visitors were not aware of the local USFS offices or they may not have been aware of the fact that national forests have recreation areas.

There was no significant difference between any Recreation Area visitors in camping experience. Most visitors had been camping for fifteen years or more. Forty to fifty percent of visitors stated that this was their first time to camp in these two Recreation Areas. Most visitors said that they liked the large and secluded campsites but were very unhappy with the bathroom facilities. One complaint that interpreters heard most from visitors was that showers were cold and the bathrooms were not well lighted at night and were not always clean. Most visitors in Ratcliff and Double Lake Recreation Areas were only staying one or two nights. There was a significant difference between the number of visitors at Double Lake Recreation Area that did not attend programs and the rest of the visitors surveyed in that many non-program attendees stayed only one night. A one night stay may have not given some visitors enough time to attend programs. The percentage of Double Lake visitors attending programs was a little over 40% for visitors staying one night and also for visitors staying 2 nights.

Most visitors at Ratcliff were staying 2 nights. There was no significant difference in the number of visitors that did not attend programs and the number of visitors that attended programs in length of stay.

Environmental Awareness

Overall, non-program attendees at Double Lake Recreation Area were more active in environmental concerns and activities than those attending programs. It is interesting to note that fewer environmental activists attended interpretive programs. There was a significantly lower number of Ratcliff visitors attending programs over other visitors surveyed who were environmentally concerned but not really involved. However, Ratcliff visitors attending programs were more environmentally active than Ratcliff visitors not attending programs and also more active than Double Lake visitors who attended programs.

About half of the visitors in both Recreation Areas subscribed or contributed to conservation oriented magazines. However, at Ratcliff significantly fewer program attendees subscribed to conservation magazines than non-program attendees. One reason for this may be that Ratcliff program attendees had a lower income level than the other recreation area visitors.

There was no significant differences between program and non-program attendees in each recreation area concerning the question of visitors writing to their congressman concerning an environmental issue, but a significantly higher number of visitors answered no to this question.

There was no significant difference in visitors who had contributed money to an environmental issue. Approximately one half of all visitors surveyed had contributed money to an environmental issue.

Most visitors had not actively demonstrated or protested an environmental issue. Double Lake non-program attendees and Ratcliff program attendees were significantly higher than Double Lake program attendees and Ratcliff non-program attendees in demonstrating or protesting environmental issues. Overall, environmental activity for all visitors in both recreation areas was high.

Interpretive Programs

The interpretive programs presented at both Recreation Areas were a key part in determining what visitors knew and did not know about environmental issues and conservation practices. Most visitors who attended interpretive programs found out about the programs when the ranger/naturalist came by their campsite. It was observed on many occasions that campers seemed apprehensive toward uniformed personnel approaching their campsites until the ranger/naturalists explained that they were there to invite visitors to the interpretive programs. The friendly attitude and good examples set by the ranger/naturalists gave visitors a positive image of uniformed personnel which was a great asset to the U. S. Forest Service.

Posting program schedules was also an effective way of publicizing the upcoming interpretive programs. A program schedule was posted on bulletin

boards in the Recreation Areas and also in local businesses in the nearest town. Some of the people attending interpretive programs were from the surrounding communities and were not staying in the Recreation Areas. Many of the repeat visitors expressed interest in continuation of interpretive programs in the future.

Some people had problems with the time schedule of morning walks. These time schedules were changed many times during the summer to accommodate as many people as possible. Morning walk times ranged from 6:00 a.m. to 11:00 a.m. Even with time flexibility, only 20 to 25 percent of visitors participated in morning walks, which was still enough participation to justify keeping morning walks in the interpretive program. Many people were just too busy in the mornings to take time out for a morning walk.

Junior Ranger programs were difficult to arrange in order to have enough children to participate in some of the activities. When Junior Ranger programs were scheduled during the same time as the morning walks, children many times preferred to accompany their parents on the walk. When the Junior Ranger program was scheduled later in the afternoon, interpreters had a very hard time competing with swimming. On some weekends there just were not very many children in the Recreation Areas. After observing many families with children, it was found that many activities were done as a family and Junior Ranger programs may not have been important. Parents were not always willing to drop their children off with the ranger/naturalist for an hour or two because the limited time available for family activities was more important.

The evening programs were by far the most popular of all the interpretive programs. They were also the programs with the most visual aids. Slide programs, night walks and sky interpretations were just a few of the activities

available to the public (Appendix C). These programs were popular because visitors had more leisure time in the evenings than during the day, and in addition, evening programs provided an opportunity for families to do something together. Interpretive programs were scheduled near the end of the day when people were trying to relax. At this point in the day, many visitors felt they had time to attend a program. Almost all of the visitors who attended programs enjoyed the presentation and when asked to rate the interpretive performance, most visitors said it was excellent or good.

The number one reason given by those that did not attend programs was that they did not have the time to attend programs. Many also stated that they were not interested in the subject matter being presented.

Interpretive Program Content

The most popular programs presented were the night walks and sky interpretation. Visitors seemed to be fascinated with the night. These interpretive programs included night sounds, owl prowls, the night sky, and Indian myths and legends of stars and constellations. The second most popular programs were those dealing with wildlife. Some of the wildlife programs talked about birds, reptiles, endangered species, animals indigenous to East Texas, and nocturnal animals.

Interpretation of forest management concepts were advantageous in that visitors learned why different management practices were used in different situations and the advantages and disadvantages of various types of forest management activities. One such interpretive program dealt with the use of fire as a natural part of the forest and also as a management tool. Visitors that attended this interpretive program reacted more positively to the use of fire as a

forest management tool than non program attendees. This type of positive reaction was also observed in visitors attending other interpretive programs on forest management concepts and practices as well.

Opinions Of National Forest Management Activities

Visitors had a variety of opinions on management of National Forests ranging from no management to strict management of certain resources. The management conclusions were separated into groups concerning management of National Forests and allowing nature to take its course.

In the statement that National Forests should be managed, a significantly higher number of Ratcliff visitors compared to Double Lake visitors stated that National Forests should be managed. One reason for this may be that most of the Ratcliff visitors live nearby and are more aware of forest management activities in their area. Most of Double Lake Recreation Area visitors are from the Houston area and do not see what types of forest management practices are being implemented on the ground. A significantly smaller proportion of Double Lake program attendees than Double Lake non-program attendees agreed with the statement that National Forests should be managed. This statement is in direct correlation with the section dealing with environmental activity in that Double Lake non-program attendees were more environmentally active than program attendees. Another possibility may be that Double Lake non-program attendees already had their minds made up without "hearing" management viewpoints.

In the statement that nature should be allowed to take its course, Ratcliff

program attendee answers were significantly higher than the answers of non-program attendees. Ratcliff non-program attendees were more in agreement in that National Forests should be managed than any other of the visitors surveyed. According to these answers, visitors want forests to be managed but they also want nature to be allowed to take its course.

Visitors were asked if they thought that humans must manage their natural resources in order to ensure future availability of these resources. Double Lake program attendees were significantly less in agreement than other visitors surveyed, and Double Lake's overall percentage of answers were lower than those at Ratcliff.

There were no significant differences in recreation area visitors surveyed concerning the statement that only trained personnel should make natural resource management decisions. Although, the results show less than half the visitors surveyed are comfortable with trained personnel making these decisions.

Public Involvement

The answers for Double Lake non-program attendees were significantly more in agreement with the statement that the public's wishes are not considered by natural resource managers than the rest of the visitors surveyed. The overall results show that more Ratcliff Recreation Area visitors than Double Lake Recreation Area visitors thought that the public's wishes were considered by natural resource managers. Both Recreation Area visitors had a significantly higher number of no opinion responses to this question compared to other questions. Ratcliff percentages were perhaps higher than those of Double Lake because most visitors live nearby and see what forest managers are doing in the national forests. Since most visitors to Double Lake are from urban areas, they

are not sure if forest managers are taking public comments into consideration in management decisions. The percentages of Double Lake program attendees was higher than the percentages of non-program attendees which may be a direct result of knowledge gained from interpretive programs or that many Double Lake non-program attendees considered themselves as environmental activists and do not trust the Forest Service in making management decisions. Also, the Houston area newspapers and television stations present more of a negative image of U.S. Forest Service policies and management practices than other areas.

There was a significant difference between Ratcliff Recreation Area non-program attendees and the rest of the visitors surveyed with the statement that the general public is not well enough informed to have input in natural resource management decisions. A higher number of Ratcliff non-program attendees disagree with this statement. Overall the results indicate that the visitors feel the public should be included in policy making decisions concerning national forest issues but they also realize that they lack the professional training to actually decide what types of management actions are needed to accomplish the desired policies. Visitors were also concerned that the public's input was not currently being heeded in the decision making process.

Endangered Species

There was no significant differences in Recreation Area visitors surveyed with the statement that endangered species should be protected. However, there was a significant difference between Double Lake Recreation Area visitors and Ratcliff Recreation Area visitors in that endangered species habitat should be managed for their benefit. More Ratcliff visitors than Double Lake visitors were in agreement with this statement.

Recreation Impact

There was a significant difference between Ratcliff and Double Lake Recreation Area visitors in feeling recreation managers should have the authority to close overused campsites for a period of time, and that recreation managers should be able to limit the number of visitors to overused areas. Visitors who live nearby seem to be more understanding and supportive of certain management practices than those who do not live in the area.

Forest Resource Protection

Natural resource managers should do all in their power to protect the forest from insect and disease. Again, the significant differences are between visitors to the two recreation areas. Ratcliff Recreation Area visitors were more in agreement with this statement than those from the Double Lake Recreation Area. This perhaps is related to the negative attitude toward management by many visitors at Double Lake.

Program attendees in both Recreation Areas were more likely to agree with the statement that fire is a natural and necessary part of forest lands and that we should use fire as a management tool in national forests than were non-program attendees. The fire ecology interpretive presentation may have influenced the results of program attendees.

Wildlife Management

All Recreation Area visitors agree that wildlife management is needed. The results of the statement that wildlife will flourish without the help of humans was lower than the results of the first wildlife statement but there was no significant differences between visitors at the two study areas. These statements show visitors are in agreement in that wildlife should be managed.

CONCLUSIONS

The overall results of many questions show that Ratcliff Recreation Area visitors are a little more informed as to what management practices are being implemented in National Forests than Double Lake Recreation Area visitors. Although Double Lake non-program attendees appear more environmentally active, they did not always understand or were not always aware of forest management activities that were being implemented on the ground. It also seems that in some instances Double Lake visitors opinions were based more on emotion than on facts. The main reason for this is that most of Ratcliff recreation area visitors live nearby and are more aware of forest management activities in their area. Most of Double Lake Recreation Area visitors are from the Houston area and apparently do not see the various types of forest management practices that are being implemented on the ground.

Conflicting viewpoints of many visitors showed that the average visitor does not have a basic knowledge and understanding of the concepts of nature and forest management. There could be many reasons for this; the basic concepts are often not taught in schools, many people may have forgotten the few concepts they were exposed to in school, people may not care about resource management issues, resource managers are not getting the message to the public on management activities which concern the environment, and distorted information on environmental issues is presented by media coverage.

The interpretive programs presented in the Recreation Areas hopefully

helped visitors better understand forest resources and management of those resources. The campground walks every Friday and Saturday evenings were very important to the success of the interpretive programs. The friendliness of ranger/naturalists made visitors feel comfortable about talking to people in uniform. It was noted that many visitors were very curious about what types of plants and animals were in the area but were afraid to ask. The campground walks gave visitors time to get to know the ranger/naturalists and also to find out more about the interpretive programs being presented. The most popular interpretive programs were those dealing with night time activities and wildlife.

This survey shows that environmental education and interpretation are a very important part of public education. Public awareness and understanding of environmental issues and resource management has increased through interpretive programs in parks and recreation areas and programs for school children. Management goals and objectives can be reached by communicating with the public through interpretation. Interpreters have the ability to make a difference.

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APPENDIX A

Date: Surveyor

Day of Week: Friday

Saturday

Sunday

Campground: Boykin Springs Caney Creek Double Lake Ratcliff

Time surveys started:

List of programs for the weekend and times.

Number of camping units occupied: _____

Camping unit no. _____

No. of campers in unit. _____

Type of camp shelter

1. _____ travel trailer

4. _____ tent trailer

2. _____ motor home

5. _____ tent

3. _____ truck mounted camper

6. _____ other _____

NATIONAL FOREST RECREATION AREA SURVEY

Sex: ☐ Female
☐ Male

Married Yes No

City in which you live

State/Zip

1. Which group best describes your camping party?

- ☐ Single family
☐ Two or more families
☐ Group of friends
☐ Organized group (scouts, church, etc)
☐ One person

2. What was the nature of your visit?

- ☐ Vacation
☐ Week-end excursion
☐ Stop-over between two destinations
☐ Other (Please specify)
- _____

3. Please check the number which best describes your total family income: (If you are uncertain, what is your best guess)

- ☐ less than \$ 9,999
☐ \$10,000 - \$25,000
☐ \$25,000 - \$49,999
☐ \$50,000 - \$74,999
☐ \$75,000 - \$99,999
☐ \$100,000 +

4. How did you first learn about this recreation area?

- ☐ Brochures/Pamphlets
☐ Friends or acquaintances
☐ Live nearby; familiar with the area
☐ Local businessmen
☐ National Forest Service Personnel
☐ Road map
☐ Saw entrance sign
☐ Other _____

5. Length of stay. (Circle one)

- (1 night) (2 nights) (3 nights)
 (4 nights) (5 nights) (6 nights)
 (1 week) (longer than 1 week)

NATIONAL FOREST RECREATION AREA SURVEY

A BACKGROUND INFORMATION

1. What is your relationship to person A

- ☐ Spouse
☐ Child
☐ Relative
☐ Friend or acquaintance
☐ I am person A.

2. Sex ☐ Male ☐ Female

3. What is your age? _____

4. What was the last year of school you completed? (please circle one number)

0 1 2 3 4 5 6 7 8

High School 9 10 11 12

College 1yr. 2yrs. 3yrs. 4yrs

Bachelors Degree, Masters Degree

Doctoral degree

5. The size city you spent most of your life in.

- ☐ Greater than 100,000
☐ Between 50,000 and 100,000
☐ Between 25,000 and 50,000
☐ Between 10,000 and 25,000
☐ Between 2,000 and 10,000
☐ Rural

6. Are you presently: (check all that apply)

- ☐ Employed full time ☐ Full time student
☐ Employed part time ☐ Part time student
☐ Homemaker ☐ Retired

Job title _____

7. How many times have you camped in this recreation area? (1) (2-5) (6-10) (10+)

8. Mark each of the following types of outdoor recreation activities in which you have participated in the past year.

- | | |
|--|---|
| <input type="checkbox"/> Bicycle riding | <input type="checkbox"/> Horseback riding |
| <input type="checkbox"/> Fishing | <input type="checkbox"/> Hiking or backpacking. |
| <input type="checkbox"/> Bird watching | <input type="checkbox"/> Hunting |
| <input type="checkbox"/> Snow skiing | <input type="checkbox"/> Picnicking |
| <input type="checkbox"/> Canoeing | <input type="checkbox"/> Walking |
| <input type="checkbox"/> Boating | <input type="checkbox"/> Jogging |
| <input type="checkbox"/> Water-skiing | <input type="checkbox"/> Nature study |
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Rock Climbing |
| <input type="checkbox"/> Camping (developed) | <input type="checkbox"/> Rappelling |
| <input type="checkbox"/> Camping (primitive) | <input type="checkbox"/> Photography |
| <input type="checkbox"/> Scuba diving | <input type="checkbox"/> Tennis |
| <input type="checkbox"/> Motorcycle riding (ORV) | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Ball Games (Baseball etc) | |
| <input type="checkbox"/> Golf | |

9. What are the 3 most important reasons you enjoy camping in this recreation area? Rank in order of importance: 1, 2, 3 (1 is the highest).

- ☐ Cleanliness
☐ Close to home
☐ Fishing quality
☐ Scenery
☐ Number of campsites
☐ Recreational Facilities--beaches, trails, swimming area etc.
☐ Uncrowded conditions
☐ Remoteness from main roads and towns
☐ More campsites near water
☐ Recommendations by friends
☐ Nearness to services
☐ Interpretive programs
☐ Other _____

NATIONAL FOREST RECREATION AREA SURVEY

10. How many years have you been going camping? (Circle One)

(1) (2-5) (6-10) (11-15) (15+)

11. What did you like most about this recreation area?

What did you like least?

12. How would you rate your experience camping in this recreation area?

excellent good fair poor

13. Do you plan, or would you like, to return to this recreation area? Yes No

If no, why not? _____

14. Do you think the National Forests in Texas are being managed properly?

Yes No No Opinion

If not, how do you think the National Forests in Texas should be managed? _____

15. Have you ever written to your Congressman about an environmental issue? Yes No

16. Have you ever contributed money for an environmental issue? Yes No

17. Have you ever actively protested or demonstrated an environmental issue? Yes No

18. Do you subscribe to any outdoor or conservation magazines such as National Geographic or Texas Parks and Wildlife? Yes No
Please specify: _____

19. Are you a member of, or do you support, any conservation organizations such as:

_____ American Forestry Association

_____ Audubon Society

_____ Ducks Unlimited

_____ Earth First!

_____ National Parks and Conservation Association

_____ National Wildlife Federation

_____ Nature Conservancy

_____ Sierra club

_____ Society of American Foresters

_____ Texas Committee on Natural Resources

_____ Texas Forestry Association

_____ Other _____

20. Do you consider yourself as:

_____ An environmental activist

_____ Concerned and somewhat involved

_____ Concerned but not really involved

_____ Part of the silent majority

_____ Not concerned

21. Have you ever visited a Wilderness Area?

Yes No

If yes, please specify which one(s): _____

22. Do you plan to visit other National Forests or Recreation Areas in Texas? Yes No

NATIONAL FOREST RECREATION AREA SURVEY

23. Do you attend programs at other parks or recreation areas? Yes No

B : DID NOT ATTEND PROGRAM

Please answer questions number 24 and 25 only if you did not attend an interpretive program:

24. What were your reasons for not attending an interpretive program?

- _____ 1. Was not aware there was a program
- _____ 2. Did not have time to go
- _____ 3. Was not interested in the subject of the program
- _____ 4. Intended to go but did not
- _____ 5. Program was at an inconvenient time
- _____ 6. Other _____

25. If you checked number five, please list a more convenient time for programs.

Friday Evening Program _____

Morning walk _____

Jr. Ranger _____

Saturday Evening Program _____

C : ATTENDED PROGRAM

Please answer questions 26-35 only if you did attend an interpretive program.

26. How did you find out about this program?

- _____ Saw a program schedule posted
- _____ A ranger/naturalist came by the campsite
- _____ From a friend or neighbor
- _____ Saw people hanging around and decided to see what was going on
- _____ Other _____

27. Circle all the programs that you attended.

Morning Walk Jr. Ranger Evening Program

28. What was the topic of the program? _____

29. How would you rate the overall presentation of the interpretive program?

excellent good fair poor

30. How would you rate the speaker's attitude?

Please circle a word or number on a scale of 1-5

friendly 2 3 4 unfriendly

helpful 2 3 4 unhelpful

courteous 2 3 4 rude

informed 2 3 4 uninformed

professional 2 3 4 unprofessional

interesting 2 3 4 boring

31. If the time of the program was not convenient, please list a more convenient time.

Morning walk _____

Jr. Ranger _____

Evening Program _____

32. What did you like most about the program?

Morning Walk _____

Jr. Ranger _____

Evening Program _____

33. What did you like least about the program?

Morning Walk _____

Jr. Ranger _____

Evening Program _____

NATIONAL FOREST RECREATION AREA SURVEY

34. Please list one interesting fact that you learned from the program you attended.

35. What subjects would you like to see covered in additional programs?

_____History of East Texas and its people.

_____Area plants/animals

_____Reptiles and amphibians

_____National Forest Management and U.S.

Forest Service policies.

_____Global and environmental issues

_____Storytelling, myths, and folklore.

_____Star gazing

_____Extended hikes

_____Programs during winter months

_____Self-Guided Nature Trails

Other_____

D: OPINIONS CONCERNING NATIONAL FORESTS

36. Please indicate the degree to which you agree or disagree with the following statements regarding natural resource management. (1) Strongly Agree, (2) Agree (3) No Opinion (4) Disagree (5) Strongly Disagree

National Forests should be managed.....1 2 3 4 5

The public's wishes are not considered
by natural resource managers.....1 2 3 4 5

Wildlife management is not needed.....1 2 3 4 5

Wildlife will flourish without the
help of humans.....1 2 3 4 5

Endangered species should be
protected.....1 2 3 4 5

Endangered species' habitat should be
managed for their benefit.....1 2 3 4 5

Recreation managers should have the
authority to close overused
campsites for periods of time.....1 2 3 4 5

Recreation managers should be able to
limit the number of visitors to
overused areas.....1 2 3 4 5

Humans must manage their natural
resources in order to ensure
future availability of these
resources.....1 2 3 4 5

Nature should be allowed to take its
course.....1 2 3 4 5

The general public is not well enough
informed to have input in natural
resource management.....1 2 3 4 5

Natural resource managers should do
all in their power to protect the
forest from insects and disease.....1 2 3 4 5

Only trained personnel should make
natural resource management
decisions.....1 2 3 4 5

Fire is a natural and necessary part
of forest lands.....1 2 3 4 5

We should use fire as a management
tool in national forests.....1 2 3 4 5

Predators control the population
numbers of their prey.....1 2 3 4 5

Additional Comments:_____

THANK YOU!

APPENDIX B

Appendix B. City of origin of Ratcliff Recreation Area visitors.

Hometown	Number of people
Arlington, Texas	5
Austin, Texas	1
Beaumont, Texas	1
Bryan, Texas	1
College Station, Texas	2
Corsicana, Texas	2
Crockett, Texas	3
Dallas, Texas	1
Deer Park, Texas	10
Denton, Texas	1
Douglass, Texas	2
Edinburg, Texas	1
Elkhart, Texas	8
Friendswood, Texas	2
Houston, Texas	15
Huntington, Texas	2
Livingston, Texas	3
Lufkin, Texas	12
Nacogdoches, Texas	11
Palestine, Texas	3
Pollock, Texas	1
Rowlett, Texas	1
Rusk, Texas	3
Spring, Texas	1
Texas City, Texas	3
Trinity, Texas	9
Waco, Texas	4

APPENDIX C

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas.

1991 Ratcliff Lake Interpretive Program Attendance		
<u>Date</u>	<u>Program</u>	<u># Attended</u>
3-29	Critters	73
3-30	Nature Walk	19
3-30	Miracle of the South's Forest	33
4-5	Forest Watersheds	17
4-6	History of the East Texas Forest	30
4-6	Nature Walk	11
4-6	Junior Ranger	2
4-12	Ecology of Fire in the Forest	15
4-13	Nature Walk	27
4-19	History of the East Texas Forest	18
4-20	Bird Walk	6
4-20	Sawmill Walk	55
4-20	Miracle of the South's Forest	35
4-27	Tejas Connection	38
5-3	Miracle of the South's Forest	11
5-4	Sawmill Walk	4
5-4	Campfire Sing Along	3
5-10	Miracle of the South's Forest	12
5-11	Sawmill Walk	9
5-11	Forest Feud	41
5-24	Tejas Connection	35
5-25	Wildflowers	96
5-26	Medicinal Plants	5

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas continued

5-31	History of the East Texas	
	Forest	33
6-1	Critters	56
6-7	Birds	30
6-8	Junior Ranger	10
6-8	Nature Walk	45
6-15	Miracle of the South's Forest	50
6-21	Ecology of Fire in the Forest	33
6-22	Tree Trek	31
6-22	Junior Ranger	5
6-22	Forest Watersheds	24
6-28	Wetlands	13
6-29	Junior Ranger	13
6-29	Wildlife	22
7-4	Eagles	31
7-5	Morning Walk	4
7-5	Miracle of the South's Forests	50
7-6	Junior Ranger	8
7-6	Nature Walk	12
7-6	Wilderness Journey	21
7-7	Sawmill Hike	9
7-12	Ecology of Fire in the Forest	22
7-13	Nature Walk	6
7-13	The Eyes Have It!	13
7-19	Wildflowers	28
7-20	Birds	46

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas continued

7-20	Junior Ranger	5
7-26	Critters	23
7-27	Junior Rangers	7
7-27	Ecology of Fire in the Forest	46
8-2	Global Issues	36
8-3	Junior Ranger	15
8-3	Trail Walk	2
8-3	Making Tracks	18
8-10	Storytelling	36
8-16	Night Walk	14
8-17	Morning Walk	16
8-17	Wetlands	15

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas continued

1991 Double Lake Interpretive Program Attendance		
<u>Date</u>	<u>Program</u>	<u># Attended</u>
5-24	History of the East Texas Forest	16
5-25	Ecology of Fire in the Forest	86
5-25	Junior Ranger	7
5-26	Discovery Walk	23
5-26	Junior Ranger	15
5-26	Night Walk	44
5-31	Forest Feud	9
6-1	Wildflowers	29
6-7	Wildflowers	12
6-7	Junior Ranger	2
6-7	Nature Hike	2
6-8	Wildlife	45
6-13	History of the East Texas Forests	24
6-14	Medicinal Plants	91
6-15	Ecology of Fire in the Forest	73
6-21	The Eyes Have It!	12
6-22	Storytelling	41
6-28	Ecology of Fire in the Forest	14
6-29	Nature Walk	17
6-29	Junior Ranger	3
6-29	Birds	42
7-4	Wetlands	22
7-5	Morning Walk	9
7-6	Junior Ranger	8
7-6	Night Walk	28

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas continued

7-7	Morning Walk	5
7-13	Critters	40
7-14	Miracle of the South's Forest	23
7-20	Morning Walk	no show
7-20	Junior Rangers	17
7-20	Ecology of Fire in the Forest	60
7-21	Nature Walk	1
7-26	Is There a Doctor in the Woods?	21
7-27	Wetlands	40
7-27	Nature Walk	8
7-28	Nature Walk	9
8-2	Wetlands	9
8-3	Morning Walk	no show
8-3	Junior Ranger	no show
8-3	Night Walk	60
8-4	Nature Walk	14
8-17	Ecology of Fire in the Forest	33
8-23	Wetlands	19
8-24	Ecosystem Management	5
8-30	Wetlands	26
8-31	Junior Ranger	1
8-31	Nature Hike	2
8-31	Forest Feud	45
9-1	Junior Ranger	2
9-1	Nature Walk	2
9-1	Night Walk	57
9-2	Morning Walk	5

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas continued.

1992 Ratcliff Lake Interpretive Program Attendance		
<u>Date</u>	<u>Program</u>	<u># Attended</u>
4-17	Ecology of Fire in the Forest	12
4-18	History of the East Texas Forest	75
4-24	Birds	12
4-25	Critters	44
5-1	Wetlands	34
5-2	Junior Ranger	9
5-2	Nature Walk	31
5-2	Is There a Doctor in the Woods?	105
5-8	Ecology of Fire in the Forest	14
5-9	The Eyes Have It!	61
5-15	How to Survive in the Woods	39
5-16	History of the East Texas Forest	47
5-22	Wetlands	13
5-23	Nature Walk	11
5-23	Birds	90
5-24	Nature Walk	9
5-24	Junior Ranger	8
5-24	Ecology of Fire in the Forest	51
5-29	History of the East Texas Forest	47
5-30	Nature Walk	9
5-30	Night Walk	28
6-5	Birds	29

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas continued

6-6	Critters	24
6-12	Ecology of Fire in the Forest	42
6-13	Tree Trek	6
6-13	Junior Ranger	1
6-13	Marshes	50
6-19	The Eyes Have It!	20
6-20	Sawmill Walk	8
6-20	Junior Ranger	13
6-20	Night Walk	45
6-26	Birds	34
6-27	Junior Ranger	2
6-27	Sawmill Walk	40
6-27	What in the World is Going On?	10
7-3	Night Walk	82
7-4	Old Mill Site Walk	12
7-4	Junior Ranger	10
7-4	Wildlife	70
7-5	Nature Walk	14
7-5	Junior Ranger	6
7-5	Land of Bears and Honey	33
7-9	4 C's Trail Walk	8
7-10	History of the East Texas Forest	31
7-11	4 C's Trail Walk	16
7-11	Miracle of the South's Forests	36
7-17	Making Tracks	17
7-18	Nature Walk	28
7-18	Junior Ranger	0
7-18	Night Walk	25

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas continued

7-24	The Changing Forest	29
7-25	Junior Ranger	3
7-25	Nature Walk	5
7-25	Night Walk	28
7-31	Fine and Pleasant Misery	53
8-1	Junior Ranger	3
8-1	Morning Walk	5
8-1	Marshes	28
8-7	Night Sit	9
8-8	Trail Hike	5
8-8	Things That Go Bump in the Night	25
8-14	Fine and Pleasant Misery	26
8-15	Junior Ranger	2
8-15	Nature Walk	8
8-15	History of the East Texas Forest	23
8-21	Night Walk	11
8-22	Junior Ranger	1
8-22	Nature Walk	9
8-22	Wildlife	45
8-28	History of the East Texas Forest	12
8-29	Marshes	29
9-4	Night Walk	15
9-5	Junior Ranger	28
9-5	4 C's Trail Walk	3
9-5	Marshes	73
9-6	Global Issues	38

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas continued.

1992 Double Lake Interpretive Program Attendance		
<u>Date</u>	<u>Program</u>	<u># Attended</u>
5-22	The Eyes Have It!	43
5-23	Nature Walk	40
5-23	Junior Ranger	40
5-23	Is There a Doctor in the Woods?	66
5-24	Nature Walk	25
5-24	History of the East Texas Forest	rained out
5-29	Wildlife	22
5-30	Nature Walk	16
5-30	Wildflowers	33
6-5	Wildflowers	36
6-6	The Eyes Have It!	58
6-12	Is There a Doctor in the Woods?	9
6-13	Wildlife	102
6-19	History of the East Texas Forest	39
6-20	Trail Walk	20
6-20	Junior Ranger	9
6-20	Birds	28
6-26	Making Tracks	20
6-27	Junior Ranger	rained out
6-27	Nature Walk	rained out
6-27	Wildflowers	29
7-3	Forest Feud	15
7-4	Field Day	17
7-4	History of the East Tx Forest	rained out

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas continued

7-5	Big Creek Scenic Trail Walk	2
7-5	Junior Ranger	1
7-6	Global Issues	8
7-10	The Changing Forest	24
7-11	Trail Walk	19
7-11	Junior Ranger	20
7-11	Wildlife Bingo	38
7-17	Night Walk	34
7-18	Trail Walk	36
7-18	Junior Ranger	16
7-18	Critters	54
7-24	What in the World is Going on?	no show
7-25	Nature Walk	no show
7-25	Junior Ranger	no show
7-25	A Fine and Pleasant Misery	18
7-31	Marshes	13
8-1	Trail Walk	6
8-1	Junior Ranger	2
8-1	Wildlife Bingo	38
8-7	Global Issues	11
8-8	Nature Walk	5
8-8	Junior Ranger	9
8-8	Forest Feud	29
8-14	Things That Go Bump in the Night	28
8-15	Nature Walk	10
8-15	Junior Ranger	9
8-15	Wildlife Bingo	58
8-21	The Changing Forest	11

Appendix C: List of programs given at Ratcliff and Double Lake
Recreation Areas continued

8-22	Morning Walk	4
8-22	Junior Ranger	4
8-22	Forest Feud	35
8-28	Birds of Prey	18
8-29	Trail Walk	0
8-29	Junior Ranger	7
8-29	The Eyes Have It!	45
9-4	Birds of Prey	18
9-5	Trail Walk	5
9-5	Junior Ranger	20
9-5	Wildlife	76

APPENDIX D

Appendix D; (Figure 4). Responses to question: "Do you subscribe or contribute to conservation magazines?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Yes	45	47	38	41	19	38	23	52	64	44	61	45
No	51	53	55	59	30	62	21	48	81	56	76	55
Total	96	100	93	100	49	100	44	100	145	100	137	100

Appendix D; (Figure 5). Responses to question: "Have you ever written to your congressman concerning an environmental issue?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Yes	11	11	19	20	8	16	8	18	19	13	27	20
No	85	89	74	80	41	84	36	82	126	87	110	80
Total	96	100	93	100	49	100	44	100	145	100	137	100

Appendix D; (Figure 6). Responses to question: "Have you ever contributed money to an environmental issue?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Yes	35	37	47	51	23	47	17	40	58	41	64	47
No	61	63	46	49	26	53	27	60	87	59	73	53
Total	96	100	93	100	49	100	44	100	145	100	137	100

Appendix D; (Figure 7). Responses to question: "Have you ever actively protested or demonstrated an environmental issue?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attended		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Yes	5	5	11	12	11	22	1	2	16	11	12	9
No	91	95	82	88	38	78	43	98	129	89	125	91
Total	96	100	93	100	49	100	44	100	145	100	137	100

Appendix D (Figure 9). Responses to question: "How would you rate the overall presentation of the interpretive program?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attend		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Excellent	41	43	--	--	19	38	--	--	60	41	--	--
Good	47	49	--	--	27	54	--	--	74	55	--	--
Fair	6	6	--	--	1	2	--	--	7	5	--	--
Poor	--	--	--	--	--	--	--	--	--	--	--	--

Appendix D; (Figure 10). Types of programs attended by questionnaire respondents.

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attend		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Morning Walk	23	24	--	--	10	20	--	--	33	23	--	--
Junior Ranger	7	7	--	--	6	12	--	--	13	9	--	--
Evening Program	89	93	--	--	42	84	--	--	131	90	--	--

Appendix D; (Figure 11). Responses to question: "How did you find out about the interpretive programs?"

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attend		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Saw a program schedule posted	33	34	--	--	24	28	--	--	57	39	--	--
Ranger/ Naturalist came by campsite	61	63	--	--	43	86	--	--	104	71	--	--
Friend or neighbor	11	11	--	--	3	6	--	--	14	10	--	--
Other	2	2	--	--	2	4	--	--	4	3	--	--

Appendix D; (Figure 12). Reasons that were given by questionnaire respondents for not attending interpretive programs .

	Double Lake				Ratcliff				Overall			
	Attended		Did Not Attend		Attended		Did Not Attend		Attend		Did Not Attend	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Not aware of the program	--	--	19	20	--	--	5	11	--	--	24	17
No time to go	--	--	27	29	--	--	10	23	--	--	37	27
Not interested in the subject matter	--	--	7	8	--	--	5	11	--	--	12	9
Intended to go but did not	--	--	14	15	--	--	9	21	--	--	23	17
Inconvenient time	--	--	10	11	--	--	5	11	--	--	15	11
Other	--	--	13	14	--	--	8	18	--	--	21	15
No answer	--	--	3	3	--	--	2	5	--	--	5	4
Total	--	--	93	100	--	--	44	100	--	--	137	100

VITA

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